HIGHLIGHTS

REVISION NO. 33 Jun 01/10

Pages which have been revised are outlined below, together with the Highlights of the Revision

CH/SE/SU C PAGES	REASON FOR CHANGE	EFFECTIVITY
CHAPTER 55		
L.E.P. 1- 4	Revised to Reflect this revision indicating new,revised, and/or deleted pages	
T. OF C. 2, 4	Revised to reflect this revision	
55-16-11 601- 612	Minor additions and amplification **IN COMPLIANCE WITH AUTHORING GUIDES**	
55-16-36 401- 409	Effectivity updated at the bottom of the page **SB 55-2021** removed **STABILIZERS - THS CENTER BOX - INTRODUCEADDITIONAL LOCKING WASHER ON ACTUATOR ATTACHMENT BOLT** Minor additions and amplification **(R03) ADD TOOL**	
55-16-36 601- 606	Effectivity updated at the bottom of the page	
55-20-00 601- 605	New Topic/New Configuration **Mod.00001X0567** incorporated **TECHNICAL PUBLICATION-BASIC MODIFICATION.** **Mod.4805C0018** incorporated **STABILIZERS - ELEVATORS - INTRODUCE C.F.R.P. STRUCTURE** Minor, non technical corrections **TO INCLUDE REVISED MATERIAL INFORMATION** Minor additions and amplification **(R01) TO INCLUDE SEALANT AND TEDLAR MATERIAL**	
55-26-11 602, 604, 609- 610	Minor additions and amplification **CHANGE DETAILS VIEW IN ILLUSTRATION**	
55-41-00 01 1- 7	Effectivity updated at the bottom of the page **SB 55-2047 01** incorporated **STABILIZERS - RUDDER - INTRODUCE IMPROVEMENTS ON RUDDER**	

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CHAPTER 55

STABILIZERS

LIST OF EFFECTIVE PAGES

N, R or D indicates pages which are New, Revised or Deleted respectively
Remove and insert the affected pages and complete the Record of Revisions and the Record of Temporary Revisions as necessary

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OF TEMP.			
REVISION			
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STABILIZERS

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STABILIZERS - DESCRIPTION AND OPERATION

1. General

A. The stabilizers comprise a vertical stabilizer and rudder assembly, a trimmable horizontal stabilizer and two elevators. Each component is removable; the horizontal stabilizer as a single unit. The horizontal stabilizer spar box is used a fuel tank.

2. Component Location

(Ref. Fig. 001)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	STABILIZER-HORIZONTAL		330		55-10-00
			340		
	ELEVATOR		335		55-20-00
			345		
	STABILIZER-VERTICAL		320		55-30-00
	RUDDER		326		55-40-00

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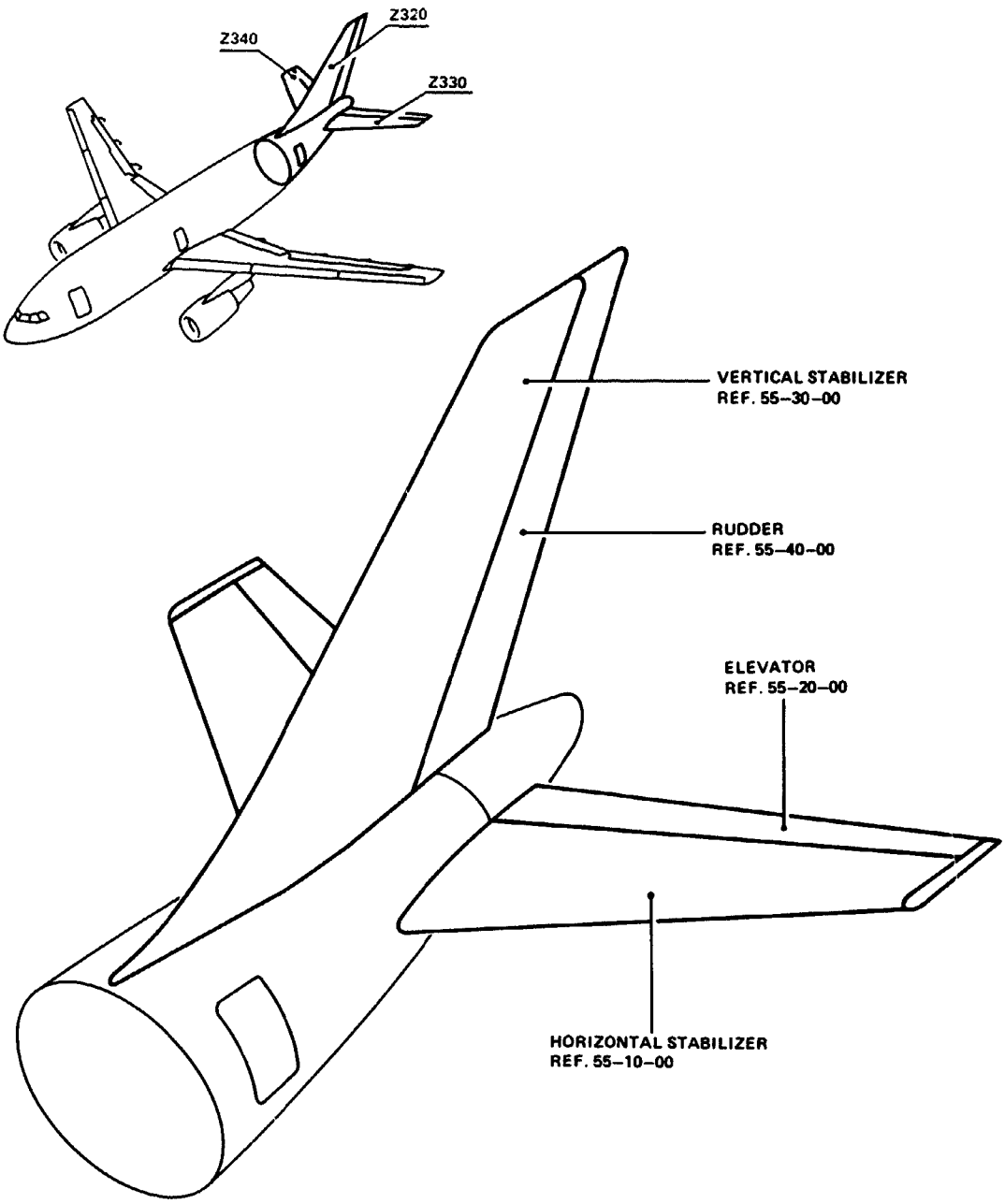

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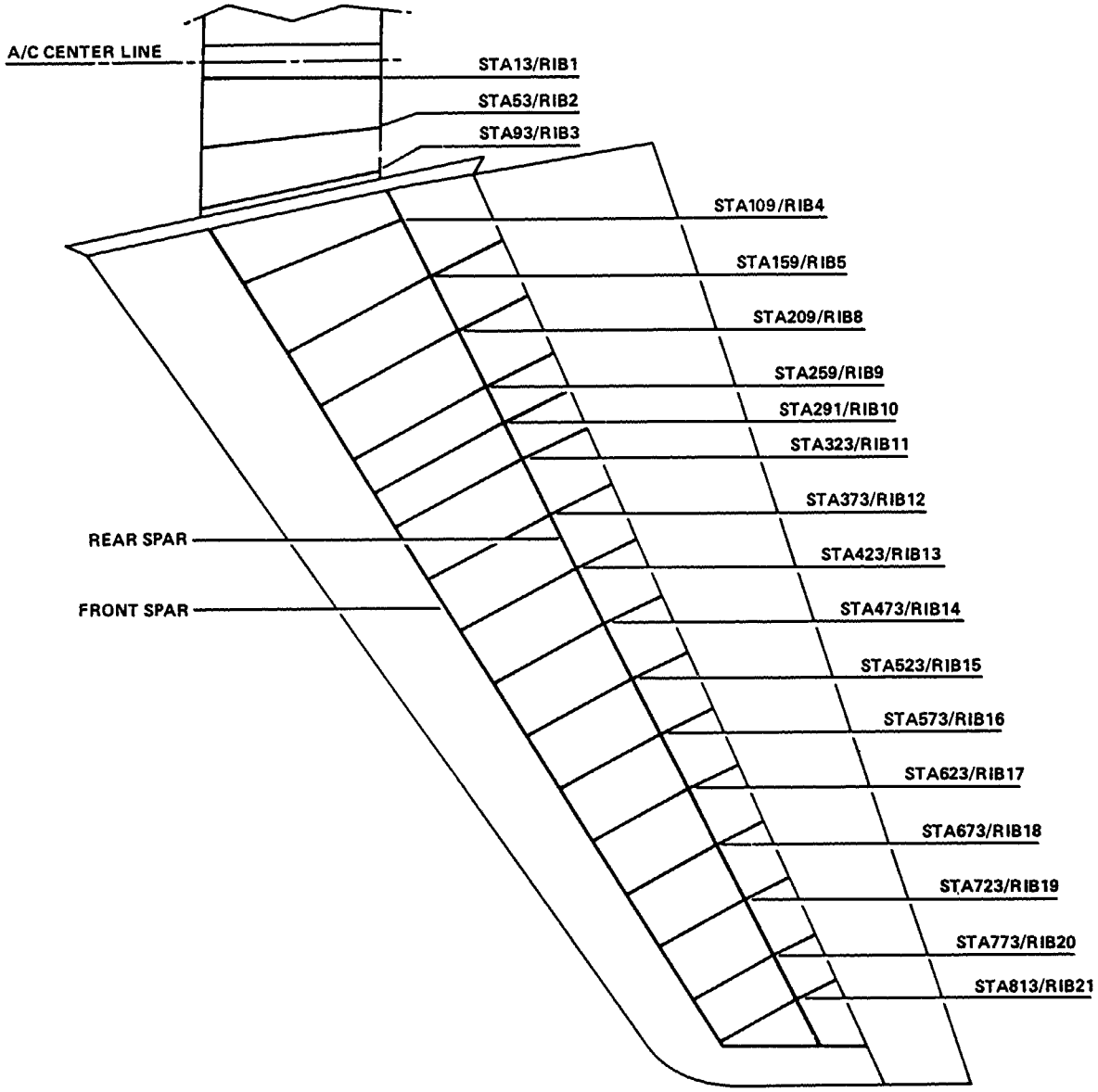
Stabilizers
Figure 001

3. Description and Operation
(Ref. Fig. 001)
(Ref. Fig. 002)
(Ref. Fig. 003)
(Ref. Fig. 004)
(Ref. Fig. 005)

A. The horizontal stabilizer is constructed from aluminum alloy sheets, extrusions and forgings. The vertical stabilizer is constructed from solid carbon-fiber laminations. The rudder, elevators, the fairings and panels on the horizontal and vertical stabilizers are of resin-fiber-composite construction.

B. The rudder and elevators are operated by three independent hydraulic systems. The rudder and horizontal stabilizer are trimmable.



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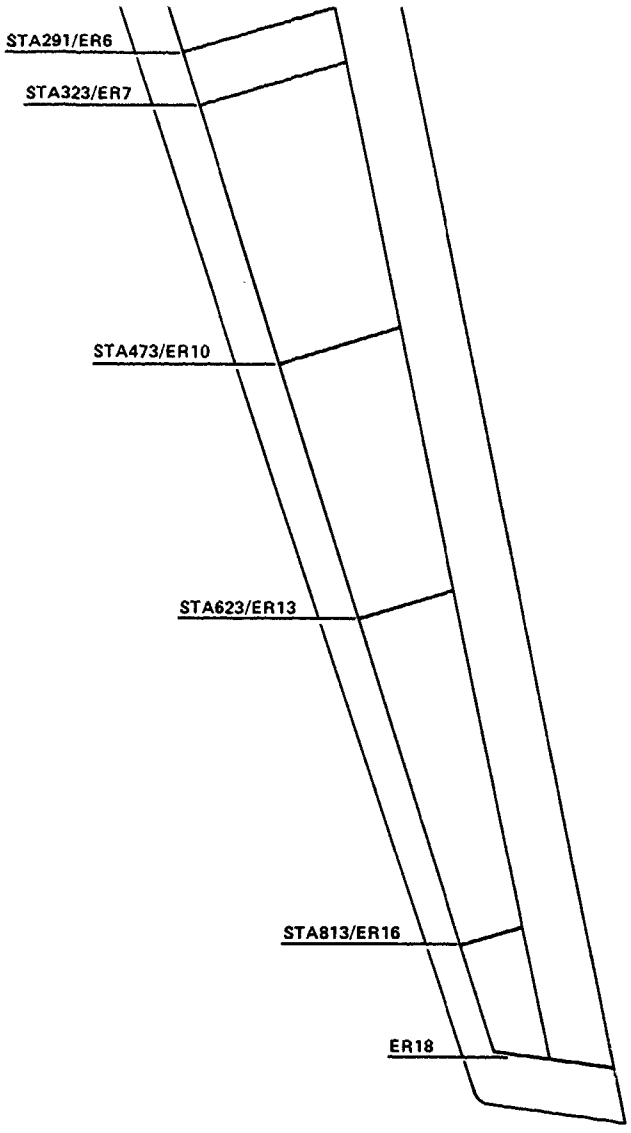
Horizontal Stabilizer STA/RIB Diagram
Figure 002

R



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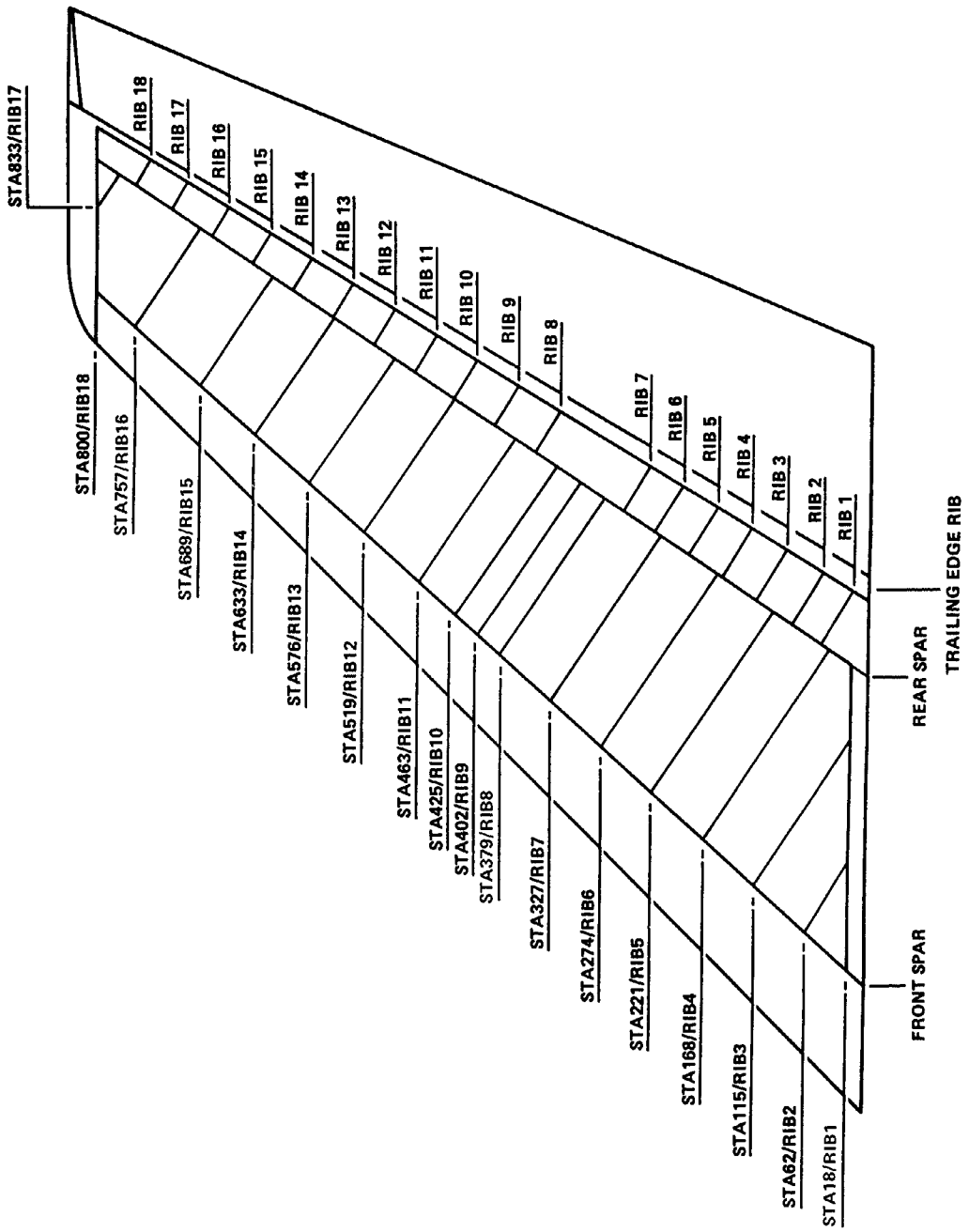
Elevator STA/RIB Diagram
Figure 003



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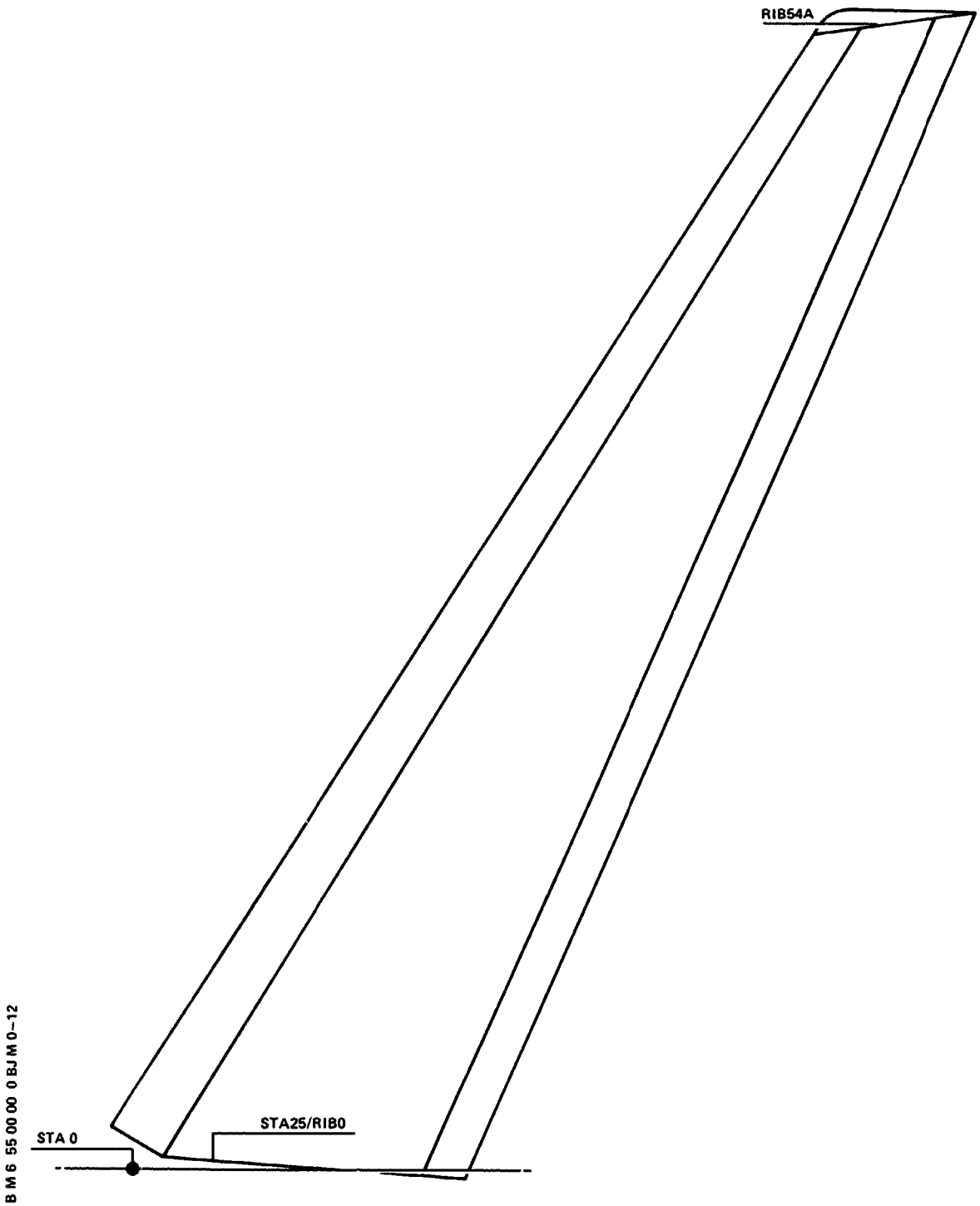
R Vertical Stabilizer STA/RIB Diagram
Figure 004



Rudder STA/RIB Diagram
Figure 005

1. Warnings

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PROCEEDING WITH MAINTENANCE WORK ON OR NEAR MECHANICAL FLIGHT CONTROLS OR PRIMARY FLIGHT CONTROL SURFACES, LANDING GEARS, ASSOCIATED DOORS OR ANY MOVING COMPONENT, MAKE CERTAIN THAT GROUND SAFETIES AND/OR WARNING NOTICES ARE IN CORRECT POSITION TO PREVENT INADVERTENT OPERATION OF CONTROLS.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, 5.5 and 6.5 m (18 and 21ft.)
B.	Electrical Ground Power Unit - 3-Phase, 115/200 V 400 Hz
C. EMH 15695	Cart- Hydraulic Ground Power Supply, 150 l/min (39.6 USGPM)
D. 97A27302009000	Locking Equipment - Pitch Trim Control Wheel
E. 98A27207601000	Pin - Rigging, Variable Stop Unit, Rudder Mechanical Controls
F. 98A27307541000	Rigging Pin - Cable Quadrant, Elevator Mechanical Controls
G. 98A27307545000	Rigging Pin - Cable Quadrant, Rudder Mechanical Controls
H. 98A27307547000	Rigging Pin - Bellcrank Assembly, Rudder Servo Controls
J. 98A27307549000	Pin - Rigging, Elevator Control Bellcranks
K.	Circuit Breaker Safety Clips
L.	Warning Notices
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 27-21-17, P. Block 401	Bellcranks
R - 27-31-00, P. Block 301	Mechanical Control and Pitch Coupling -
R	Rigging
- 27-31-32, P. Block 401	Aft Detent Bellcrank
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)

3. Procedure

A. Operation of Horizontal Stabilizer

(1)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(2)Make certain that electronics racks ventilation is correct.

(3)Pressurize Green and Yellow hydraulic systems with either hydraulic ground power cart (Ref. 29-10-00, P. Block 301) or the Green and Yellow auxiliary power (Ref. 29-21-00, P. Block 301 and 29-23-00, P. Block 301 respectively).

(4)On SERVO CTL section of panel 428VU, make certain that G and Y pushbutton switches are pressed in (legends off).

(5)Make certain that the following circuit breakers are closed:

PANEL	SERVICE	IDENT.	LOCATION
21VU	FAC1/28VDC	306CC1	103/G 3
21VU	FAC1/115VAC	309CC1	103/G 5
21VU	FAC1/26VAC	305CC1	103/G 7
21VU	FAC2/26VAC	305CC2	103/G 8
21VU	FAC2/115VAC	309CC2	103/G10
21VU	FAC2/28VDC	306CC2	103/G12

(6)Make certain that flap and slat control lever is in first notch position.

(7)Make certain that SPEED BRAKE control lever is in RET position, ground spoiler function not preselected.

(8)Make certain that travel range of horizontal stabilizer is free from obstruction.

CAUTION : THS DEFLECTION MUST NOT EXCEED 0.5 DEG/S. CHECK ON PITCH TRIM CONTROL WHEELS.

(9)Operate pitch-trim control wheel in flight compartment to move horizontal stabilizer to required position.

B. To Make Horizontal Stabilizer Safe
(1)Operate horizontal stabilizer to required position (Ref. Para. 3.A.).
(2)Position access platform.
(3)Open access door 312AR.
(4)Install locking equipment P/N 97A27302009000 on pitch trim control wheel.
(5)Display warning notices in flight compartment prohibiting operation of elevator and pitch trim controls.
(6)Open, tag and safety the following circuit breakers:

PANEL	SERVICE	IDENT.	LOCATION
21VU	FAC1/ 28VDC	306CC1	103/G 3
21VU	FAC1/115VAC	309CC1	103/G 5
21VU	FAC1/ 26VAC	305CC1	103/G 7
21VU	FAC2/ 26VAC	305CC2	103/G 8
21VU	FAC2/115VAC	309CC2	103/G10
21VU	FAC2/ 28VDC	306CC2	103/G12

(7)Move elevator to neutral position and install either rigging pin P/N 98A27307541000 in cable quadrant of pitch artificial feel unit
R (Ref. 27-31-00, P. Block 301) or when trailing edge access panels have to be removed install rigging pin P/N 98A27307549000 in elevator control bellcrank at rear spar (Ref. 27-31-32, P. Block 401).
(8)Depressurize hydraulic systems (Ref. 29-10-00, P. Block 301), display warning notices prohibiting repressurization of hydraulic systems.
NOTE : Step (8) is only applicable if hydraulic lines have to be disconnected.

C. To Make Vertical Stabilizer Safe
(1)Move rudder to neutral position.
(2)Position access platform.
(3)Open access door 312AR.
(4)Install either rigging pin P/N 98A27307545000 in cable quadrant of rudder control frame and rigging pin P/N 98A27207601000 in variable stop unit or when trailing edge access panels have to be removed, install rigging pin P/N 98A27307547000 in rudder control bellcrank at rear spar (Ref. 27-21-17, P. Block 401).
(5)Display warning notices in flight compartment prohibiting operation of rudder and rudder trim controls.
(6)Depressurize hydraulic systems (Ref. 29-10-00, P. Block 301), display warning notices prohibiting repressurization of hydraulic systems.
NOTE : Step (6) is only applicable if hydraulic lines have to be disconnected.

D. To Return Stabilizers to Operating Condition

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(2)Remove rigging pins P/N 98A27307541000, P/N 98A27307549000, P/N 98A27307545000 and P/N 98A27207601000 or P/N 98A27307547000.

(3)Remove locking equipment P/N 97A27302009000.

(4)Remove safety clips and tags and close circuit breakers 306CC1, 309CC1, 305CC1, 305CC2, 309CC2 and 306CC2.

(5)De-energize aircraft electrical network and disconnect electrical ground power unit (Ref. 24-41-00, P. Block 301).

(6)Shut down hydraulic power and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

(7)Remove warning notices.

(8)Close access door 312AR.

(9)Remove access platform.

HORIZONTAL STABILIZER - DESCRIPTION AND OPERATION

1. General (Ref. Fig. 001)

A. The trimmable horizontal stabilizer (THS) is a single-piece structure mounted through, and supported by the fuselage tail section. The horizontal stabilizer provides the supporting structure for the LH elevator and RH elevator.

B. The angle of incidence of the horizontal stabilizer can be adjusted by means of a trim control wheel located in the flight compartment. Its displacement range is 3° aircraft nose down to 14° aircraft nose-up.

C. The THS is positioned at the tail section in a large cutout, and is attached to the fuselage at three points, namely between FR86 and FR87 by the THS actuator, and by the two hinge points on either side of the fuselage at FR91.

2. Component Location

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	SPAR BOX-HORIZONTAL STABILIZER			333/343	55-11-00
	LEADING EDGE-HORIZONTAL STABILIZER			331/341	55-12-00
	TRAILING EDGE-HORIZONTAL STABILIZER			334/344	55-13-00
	TIPS-HORIZONTAL STABILIZER			332/342	55-14-00
	APRON-HORIZONTAL STABILIZER			333/343	55-15-00
	ATTACH FITTINGS-HORIZONTAL STABILIZER				55-16-00

3. Description (Ref. Fig. 001)

A. The horizontal stabilizer comprises the horizontal stabilizer spar box consisting of the center spar box, LH spar box and RH spar box, the LH and RH stabilizer leading edge, the LH and RH stabilizer trailing edge, and the LH and RH stabilizer tip, the LH and RH stabilizer aprons and the stabilizer attach fittings.

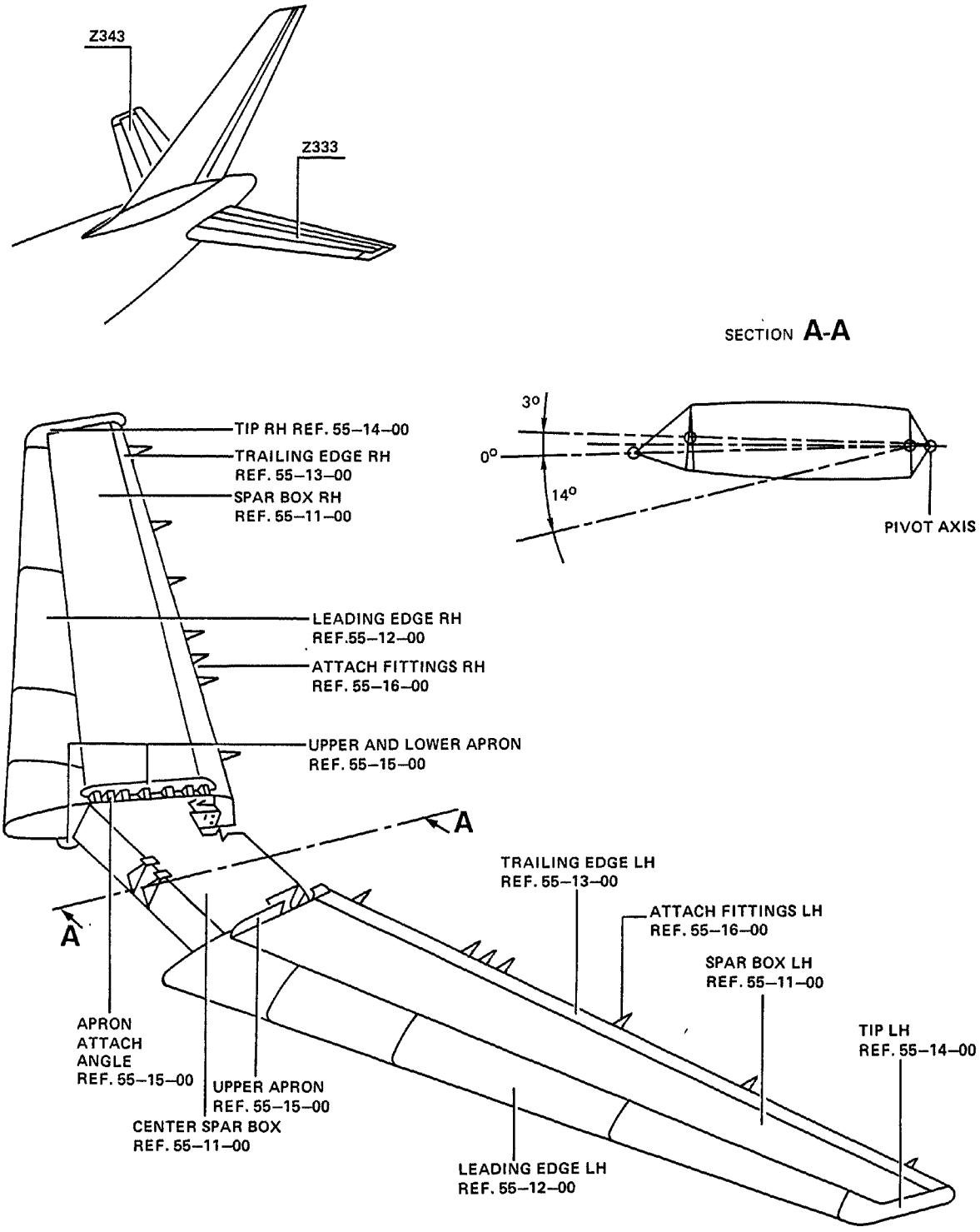
B. The main structural component of the horizontal stabilizer is the stabilizer spar box, and all loads on the horizontal stabilizer are transmitted to the fuselage through the center spar box and its attach fittings.

C. All other components of the horizontal stabilizer are attached to the stabilizer spar box, and are removable for repair and/or maintenance.

D. The LH and RH components of the horizontal stabilizer trailing edge consist of four upper and lower access panels and 5 upper and lower removable panels. They are screwed to the ribs and hinged to the spar box.

E. The LH and RH stabilizer tips are of bonded reinforced fiberglass construction and are attached to the stabilizer spar box, trailing edge and leading edge.

F. The LH and RH horizontal stabilizer leading edge consist each of four sections.



Horizontal Stabilizer
Figure 001

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

NOTE : Should a defect be suspected during the following inspection/check an approved nondestructive test must be carried out.
If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

1. Horizontal Stabilizer - Inspection/Check

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platforms, 5.5 m and 6.5 m (18 ft and 21 ft)
(2)Material No. 05-005	Special Materials (Ref. 20-31-00)
(3)Material No. 05-027	Special Materials (Ref. 20-31-00)
Reference Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 51-73-10, P. Block 801	Repair of Minor Damage
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 51-77-10, P. Block 801	Repair of Honeycomb Components
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-12-11, P. Block 401	Leading Edge
- 55-13-11, P. Block 401	Trailing Edge
- 55-13-13, P. Block 401	Trailing Edge Access Panels

B. Procedure

(1)Job Set-Up

(a)For inspection of upper and lower surfaces of center spar box, pressurize hydraulic system (Ref. 29-10-00, P. Block 301) and move horizontal stabilizer to fully nose up or fully nose down position (Ref. 55-00-00, P. Block 301).

(b)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

(c)Position access platforms.

(d)Open or remove horizontal stabilizer trailing edge access panels (Ref. 55-13-13, P. Block 401).

(e)Remove horizontal stabilizer trailing edge section (Ref. 55-13-11, P. Block 401).

(f)Remove horizontal stabilizer leading edge (Ref. 55-12-11, P. Block 401).

(g)Open access doors 312AR and 313AL for inspection/check of center spar box.

(2)Inspection/Check of Center Spar Box

(a)The following areas have specific damage criteria (Ref. Fig. 601):

1 Center spar box skin panels

Scratches:

R01 - 10% of nominal material thickness, max. length 40 mm (1.57 in.) (Ref. Fig. 602)

Corrosion and Marks:

- 5% of material thickness, max. area 40 mm² (0.62 sq.in.).

Dents:

- not permissible

2 Front and Rear spar, RIBS 1 LH and RH and RIBS 3 LH and RH (Ref. Fig. 601)

Scratches:

R01 - 5% of nominal material thickness, max. length 40 mm (1.57 in.).

Corrosion and Marks:

- 5% of material thickness, max. area 400 mm² (0.62 sq. in.).

Dents:

- not permissible

3 Ribs 2 LH and RH (Ref. Fig. 601)

Scratches:

R01 - 10% of nominal material thickness,
R01 max. length 100 mm (3.94 in.).

Corrosion and Marks:

- 10% of material thickness, max. area 400 mm² (0.62 sq. in.).

Dents:

- not permissible

(c)Should stated limits be exceeded, a structural repair must be carried out.

1 For the removal of scratches, marks and dents refer to 51-73-10, P. Block 801 and 51-77-10, P. Block 801.

2 For the removal of corrosion, refer to 51-74-10, P. Block 801.

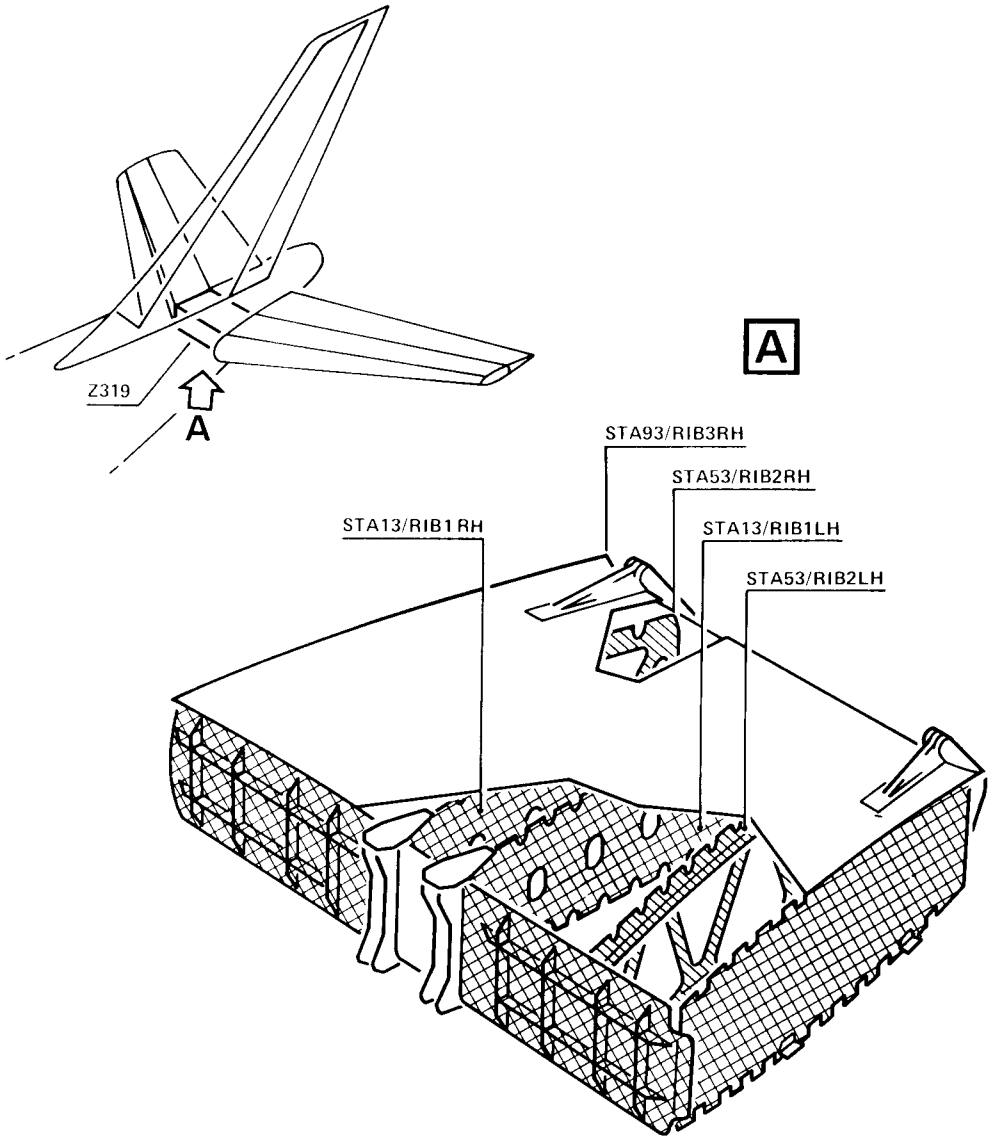
3 For the removal of paint coatings, refer to 51-75-10, P. Block 801.

(3)Inspection/Check of LH and RH Spar Boxes
(a)The following areas have specific damage criteria (Ref. Fig. 603).
1 Spar box skin panels
Scratches:
- For scratches parallel to stringers, (Ref. Fig. 604).
- For scratches parallel to ribs, (Ref. Fig. 605).
2 Spar box except skin panels
Scratches:
R01 - In hatched areas; 5% of nominal material thickness,
R01 max. length 40 mm (1.57 in.).
R01 - In blank areas; 10% of nominal material thickness,
R01 max. length 100 mm (3.94 in).
3 Spar box complete
Corrosion and marks:
- In hatched area; 5% of material thickness, max. areas 400 mm^2 (0.62 sq. in.).
- In blank areas; 10% of material thickness, max. area 400 mm^2 (0.62 sq. in.).
Dents:
- In hatched areas; not permissible.
- In blank areas; depth of dent must not exceed 2% of distance from center of dent to a point 13 mm (0.51 in.)from nearest rivet cemter line.
4 Trailing edge panels, sections, and tips (nonmetallic parts)
Scratches:
- max. depth 0.1 mm (0.004 in.), max. lateral length 100 mm (3.94 in.), max. longitudinal length 50 mm (1.97 in.).
Marks and dents:
- Not permissible
(b)Should stated limits be exceeded, a structural repair must be carried out.
1 For the removal of scratches, marks and dents refer to 51-73-10, P. Block 801 and 51-77-10, P. Block 801.
2 For the removal of corrosion, refer to 51-74-10, P. Block 801.
3 For the repair of paint coatings, refer to 51-75-10, P. Block 801.

(4)Inspect all structural components and areas for damage, cracks, loose or missing rivets, corrosion, skin separation, condition of sealant and paint.
(a)Pay special attention to the following areas and carry out detailed visual inspection of horizontal stabilizer:
- Internal structure in area of trim actuator arm support fitting attachments.
- Center box front spar aft face between RIB3 LH and RIB3 RH.
- Center box front spar forward face between RIB3 LH and RIB3 RH.
- Center box top skin lower surface from front to rear spar between RIB3 LH and RIB3 RH.
- Center box bottom skin upper surface from front to rear spar between RIB3 LH and RIB3 RH.
- Hinge fittings, upper and lower attach fittings and surrounding

structure.
- Sparbox in area of hinge fitting attachments, both sides of RIB3 LH and RIB3 RH.
- Center box rear spar forward face between RIB3 LH and RIB3 RH.
- Rear spar web aft face from RIB3 LH to RIB5 LH and RIB3 RH to RIB5 RH.
- Center Box top skin upper surface from front to rear spar and between RIB3 LH and RIB3 RH.
- Sparbox internal structure between RIBS3 and 14 LH and RH.
- Front spar forward face between RIBS3 and 8 LH and RH.
- Top skin upper surface at attachments to ribs, spars, stringers and chordwise splice between horizontal stabilizer to fuselage fairing and RIB14 LH and RH.
- Top skin upper surface at attachments to ribs, spars and stringers between RIB14 and END RIB LH and RH.

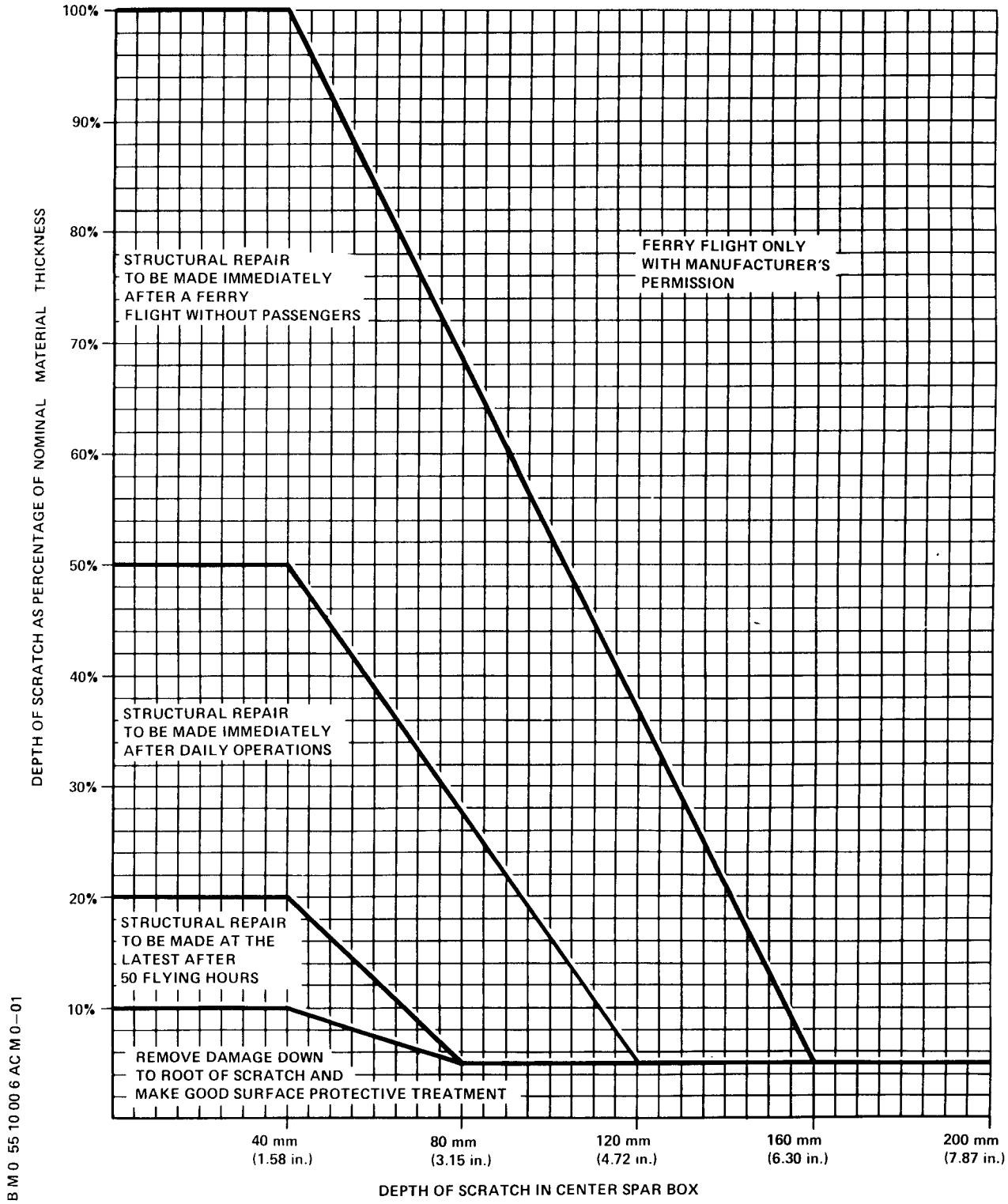
(5)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Check coating of moisture-removing oil (Mat. No. 05-027) for good condition on all internal metallic surfaces and structure of horizontal stabilizer tips, leading edge and trailing edge and renew as necessary (Ref. 51-75-10, P. Block 801).
(c)Check corrosion-preventive compound (Mat. No. 05-005) on all edges and fasteners for good condition, renew as necessary. (Ref. 51-75-10, P. Block 801).
(d)Install horizontal stabilizer leading edge (Ref. 55-12-11, P. Block 401).
(e)Install horizontal stabilizer trailing edge section (Ref. 55-13-11, P. Block 401).
(f)Install horizontal stabilizer trailing edge access panels (Ref. 55-13-13, P. Block 401).
(g)Return stabilizers to operating condition (Ref. 55-00-00, P. Block 301). Close access doors 313AL and 312AR.
(h)Remove access platforms.



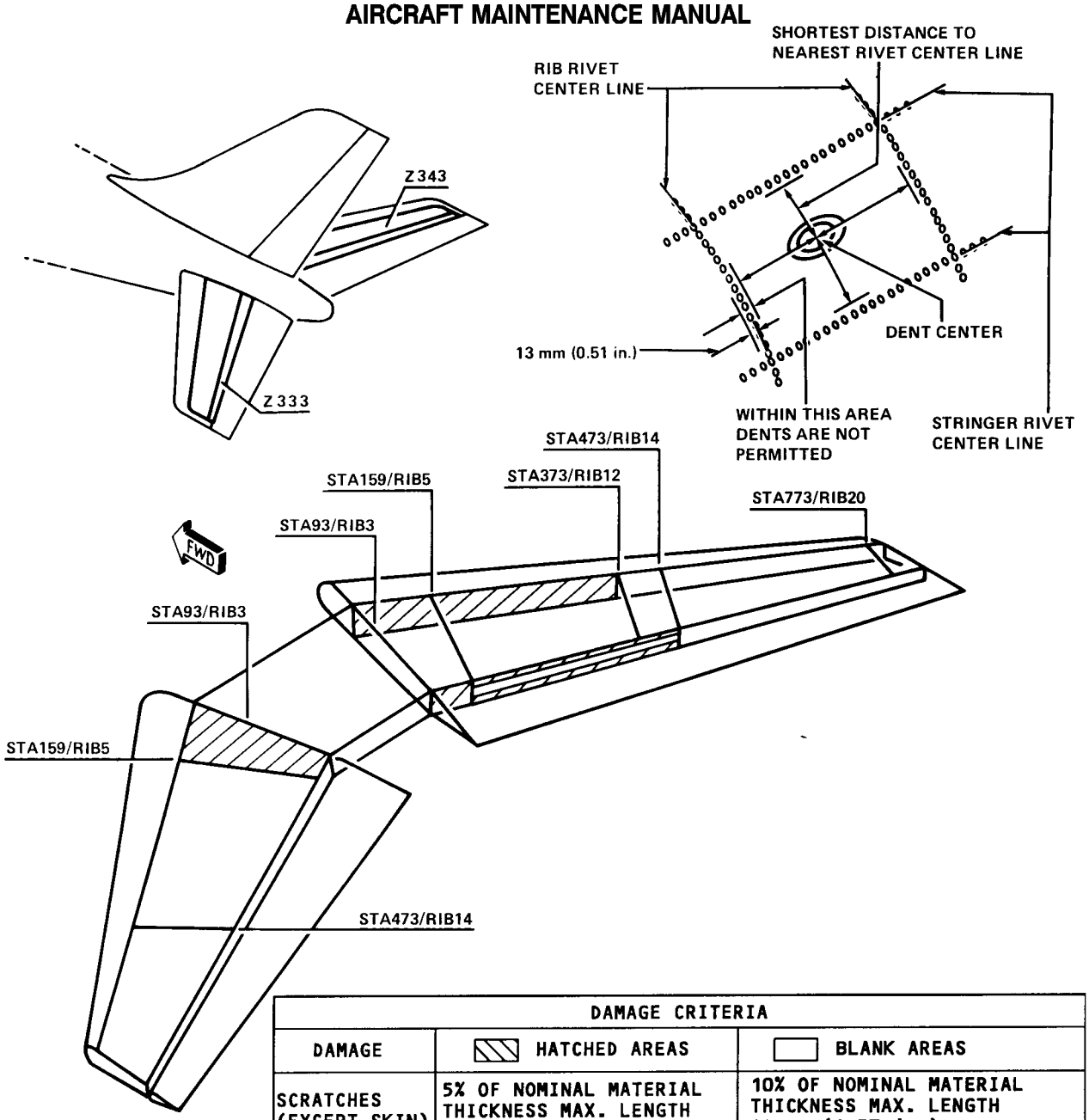
DAMAGE CRITERIA			
DAMAGE	BLANK AREAS	HATCHED AREAS	CROSS HATCHED AREAS
SCRATCHES	10% OF NOMINAL MATERIAL THICKNESS MAX. LENGTH 40 mm (1.57 in.)	10% OF NOMINAL MATERIAL THICKNESS MAX. LENGTH 100 mm (3.94 in.)	5% OF NOMINAL MATERIAL THICKNESS MAX. LENGTH 40 mm (1.57 in.)
CORROSION AND MARKS	5% OF MATERIAL THICKNESS MAX. AREA 400 mm^2 (0.62 sq. in.)	10% OF MATERIAL THICKNESS MAX. AREA 400 mm^2 (0.62 sq. in.)	5% OF MATERIAL THICKNESS MAX. AREA 400 mm^2 (0.62 sq. in.)
DENTS	NOT PERMISSIBLE	NOT PERMISSIBLE	NOT PERMISSIBLE

BM0 55 10 00 6 AA M0-01

Center Spar Box Damage Criteria
Figure 601



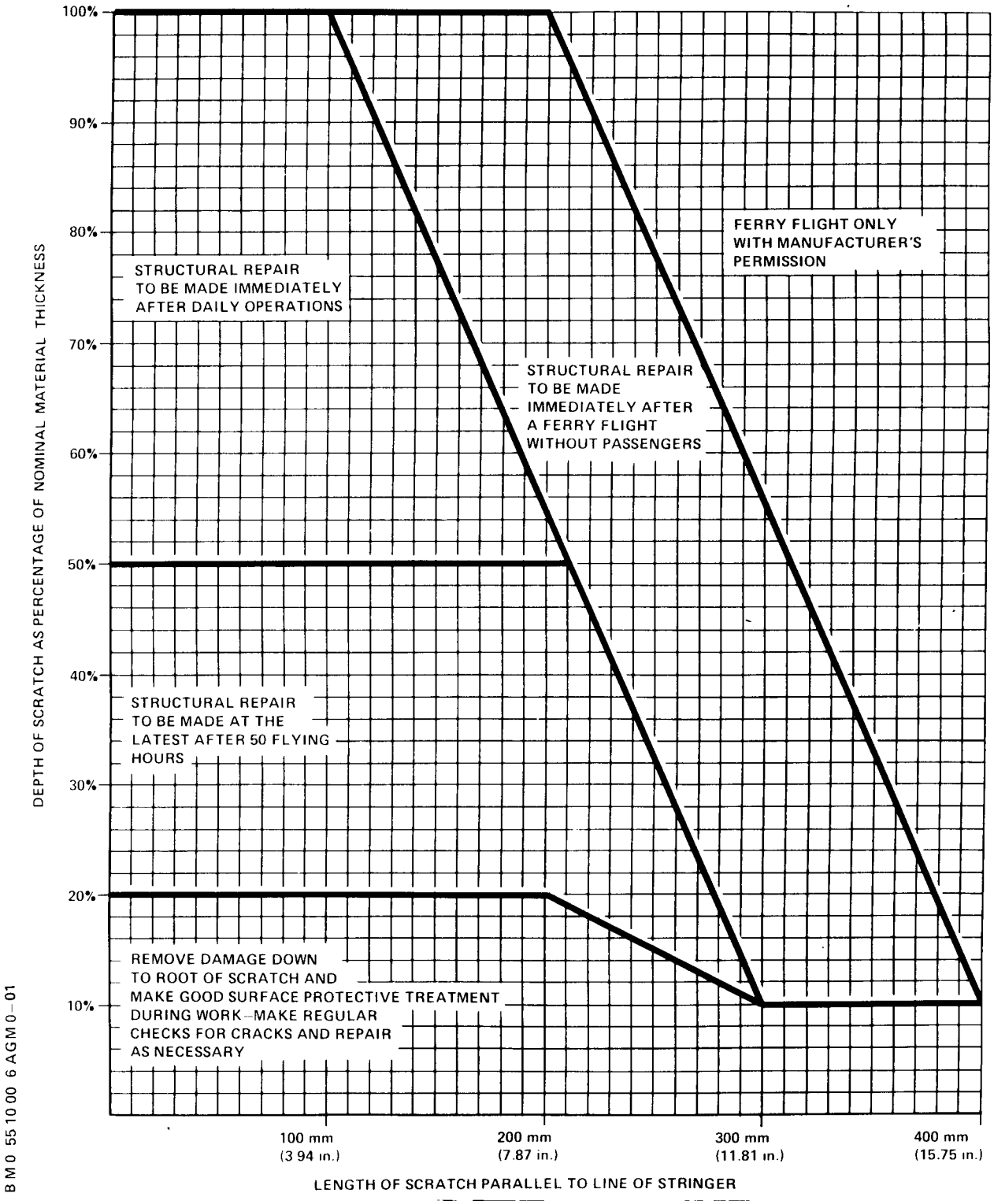
Scratch Limits in Center Spar box Skin
Figure 602



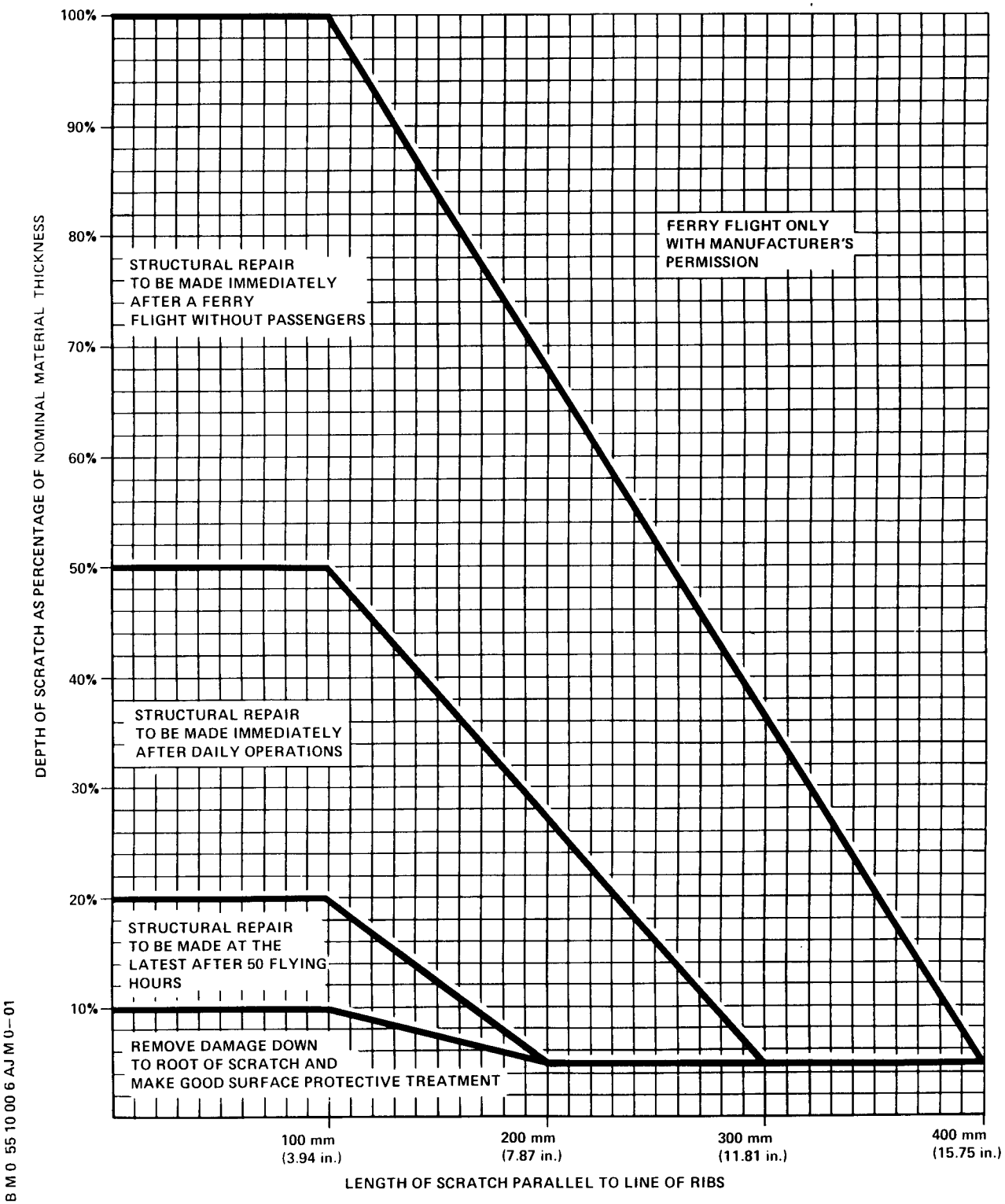
DAMAGE CRITERIA		
DAMAGE	HATCHED AREAS	BLANK AREAS
SCRATCHES (EXCEPT SKIN)	5% OF NOMINAL MATERIAL THICKNESS MAX. LENGTH 40 mm (1.57 in.)	10% OF NOMINAL MATERIAL THICKNESS MAX. LENGTH 40 mm (1.57 in.)
CORROSION AND MARKS	5% OF MATERIAL THICKNESS MAX. AREA 400 mm^2 (0.62 sq. in.)	10% OF MATERIAL THICKNESS MAX. AREA 400 mm^2 (0.62 sq. in.)
DENTS	NOT PERMISSIBLE	MAX. DEPTH 2% OF THE SHORTEST DISTANCE FROM THE CENTER OF THE DENT TO A POINT 13 mm (0.51 in.) FROM THE NEAREST RIVET CENTER LINE

BMO 55 10 00 6 AE M 0-01

LH and RH Spar Box Damage Criteria
Figure 603



Scratch Limits in Skin - 1
Figure 604



Scratch Limits in Skin - 2
Figure 605

HORIZONTAL STABILIZER TRIMMABLE - REMOVAL/INSTALLATION

WARNING: STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZER (REF. 55-00-00 P. BLOCK 301

R CAUTION: MAKE SURE THAT THE HYDRAULIC FLUID DOES NOT COME INTO CONTACT WITH THE AIRCRAFT STRUCTURE.
KEEP THE SPILLAGE TO AN ABSOLUTE MINIMUM. CLEAN UP THE SPILLED HYDRAULIC FLUID IMMEDIATELY WITH A DRY CLOTH AND WASH THE CONTAMINATED AREA WITH CLEANING AGENT MATERIAL NO. 11-003.
(Ref. 51-00-00, P. Block 301).

1. Reason for the Job

A. Removal for Replacement, Inspection or Repair.

2. Equipment and Materials

	ITEM	DESIGNATION
	A.	Access Platforms 5.5 and 6.5 m (18 ft. and 21 ft. 3 in.)
R	B. 98A27407514001	Fixture - Strut, Horizontal Stabilizer (THS)
R	C. 98A27407568001	Distance Strut, Frame 91 (FR91) (Qty2)
R	D. 98A55108013000	Sling - Installation/Removal Horizontal Stabilizer
R	98A55109001-002	
R	E. 35D55182822000	Plastic Plug
	F.	Blanking Caps for Electrical Connections
	G.	Blanking Plugs and Caps for Hydraulic Connections
	H.	Circuit Breaker Safety Clips
	J.	Container
	K.	Torque Wrench, up to 10 m.daN (74 lbf.ft.)
	L.	Peg Wrench
	M. Material No. 05-002	Special Materials (Ref. 20-31-00)
	N. Material No. 05-005	Special Materials (Ref. 20-31-00)
	P. Material No. 05-027	Special Materials (Ref. 20-31-00)
	Q. Material No. 05-052	Special Materials (Ref. 20-31-00)
	R. Material No. 11-001	Cleaning Agents (Ref. 20-31-00)
	S. Material No. 11-003	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures:	
	- 11-20-00, P. Block 1	Exterior Placards and Markings
	- 12-11-28, P. Block 301	Fuel Tank Replenishing
	- 20-28-11, P. Block 1	Electrical Bonding
	- 22-13-23, P. Block 401	Autopilot Pitch Actuator 18CA
	- 27-14-00, P. Block 501	Hydraulic Actuation (Aileron)
	- 27-31-00, P. Block 301	Mechanical Control and Pitch Uncoupling - Rigging
	- 27-31-00, P. Block 501	Mechanical Control and Pitch Uncoupling

ITEM	DESIGNATION
- 27-31-21, P. Block 401	Vertical Torque Tube, with Universal Joint
- 27-31-24, P. Block 401	Elevator
- 27-34-11, P. Block 401	Elevator Servo Control
R - 27-35-00, P. Block 501	Control Surface Position Indicating (Elevator)
- 27-41-00, P. Block 501	Mechanical Control (THS)
R - 27-45-00, P. Block 501	Control Surface Position Indicating (THS)
- 28-00-00, P. Block 301	General
- 28-12-38, P. Block 401	Vapor Seal Vent and Drain
- 28-13-00, P. Block 501	External Ventilation of Center Tank
- 28-22-00, P. Block 501	Trim Tank Isolation Valve
- 28-25-00, P. Block 301	Refuel/Defuel System
- 28-26-00, P. Block 501	Fuel Tank System
- 28-26-16, P. Block 401	Shrouded Flexible Hose (2 in.)
- 28-46-00, P. Block 501	Fuel Level Sensing
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 33-47-00, P. Block 501	Logo Light
- 51-00-00, P. Block 701	Hydraulic Fluid Spillage
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 53-10-47, P. Block 401	Support Struts - Fuselage Aft and Tail Section
- 53-10-88, P. Block 401	Fuselage Aft Section Fittings
- 53-19-11, P. Block 401	Tail Cone
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-12-11, P. Block 401	Leading Edge
- 55-13-13, P. Block 401	Trailing Edge Access Panels
- 55-15-11, P. Block 401	Horizontal Stabilizer Apron
- 55-16-36, P. Block 401	THS Actuator Arm

3. Procedure

A. Job Set-Up

(1)Make the horizontal stabilizer safe. (Ref. 55-00-00, P. Block 301).
R (2)Put the access platforms.
R (3)Defuel the trim tank (TT). (Ref. 28-25-00, P. Block 301).
(4)Open, safety and tag the following circuit breakers:

PANEL	SERVICE	IDENT.	LOCATION
21VU	AFS/MTP	301CU	102/H01
21VU	AFS/AP1 FD1 FCC1 26VAC	305CA1	102/H02
21VU	AFS/AP1 FD1 FCC1 28VDC	306CA1	102/H03
21VU	AFS/AP1 FD1 FCU	312CA1	102/H04
21VU	AFS/AP2 FD2 FCU	312CA2	102/H05
21VU	AFS/AP2 FD2 FCC2 28VDC	306CA2	102/H06
21VU	AFS/AP2 FD2 FCC2 26VAC	305CA2	102/H07
22VU	FUEL/TK LO LVL/L OUTR and R INR AND CTR R	1QJ	208/B26

PANEL	SERVICE	IDENT.	LOCATION
22VU	FUEL/TK LO LVL/R OUTR and L INR AND CTR L	2QJ	208/B27
22VU	FUEL/TRIM TANK/FWD XFR AUX VALVE	2QL	201/J21
22VU	FUEL/TRIM TANK/FWD XFR PUMP 1 CTL	3QN	201/J22
22VU	FUEL/TRIM TANK/FWD XFR PUMP 1 WARN	5QN	201/J23
132VU	FUEL/TRIM TANK/XFR PUMP 2 WARN	6QN	325/K54
132VU	FUEL/TRIM TANK/XFR PUMP 2 CTL	4QN	325/K55
132VU	FUEL/OUTR TK/L ISOL VALVE	1QB	324/L53
132VU	FUEL/OUTR TK/R ISOL VALVE	2QB	324/L58
132VU	FUEL/INR TK/L ISOL VALVE	3QB	324/L55
132VU	FUEL/INR TK/R ISOL VALVE	4QB	324/L56
132VU	LIGHTING/EXTERIOR LT/LOGO L	1LY	323/M79
132VU	LIGHTING/EXTERIOR LT/LOGO R	3LY	323/M82
132VU	FUEL - FUELLING TRANSFER VALVE	2QU	321/P55
132VU	FUEL - FUELLING CTL AND REFUEL VALVE	1QU	321/P56
132VU	FUEL/FUELLING HI LVL	6QJ	321/P57
132VU	FUEL/FUELLING OVERFLOW	5QJ	321/P58
132VU	FUEL/FQI SUPPLY AND IND	1QT	321/P59
132VU	FUEL/FQI CHAN SUPPLY 1	3QT	321/P60
132VU	FUEL/FQI CHAN SUPPLY 2	4QT	321/P61
133VU	FLT CTL/CTL SURF POS	1CT	334/S61
133VU	FLT CTL/E FCU LAND RECOVERY SUPPLY SPLR 6 AND 7	9CP	333/T66
133VU	FLT CTL/SERVO CTL AND THS HYD SEL	1CB	332/U63
133VU	FLT CTL/SERVO CTL AND THS JAM DET	2CB	332/U64

(5)Remove the trailing-edge access panels. (Ref. 55-13-13, P. Block 401).
(6)Remove the aprons. (Ref. 55-15-11, P. Block 401).
(7)Remove the LH and RH inner sections of the THS leading edges, the support struts and the fairing supports. (Ref. 55-12-11, P. Block 401).
(8)Remove the tail cone. (Ref. 53-19-11, P. Block 401).
(9)Remove the LH and RH elevators. (Ref. 27-31-24, P. Block 401).
(10)Remove the elevator servo controls. (Ref. 27-34-11, P. Block 401).

B. Installation of the Sling P/N 98A55108013000
(Ref. Fig. 404, 405)

(1)Remove and discard the self-adhesive covers (Mat. No. 05-052) of the hoisting points.
(2)Remove the hoisting lugs and install in the reverse position in the THS at the STA159 (RIB5), and the STA473 (RIB14) LH and RH side.
(***//ATM0//***)
(3)Remove the support fittings and install in reverse position at the STA259 (RIB9) and the STA323 (RIB11) LH and RH side.
(Ref. Fig. 404)

If support fitting cannot be easily removed:
(a)Drill two holes, 8mm (0.315 in.) diameter to a depth of between 10 mm and 15 mm (0.394 and 0.591 in.) in the support fitting.
(b)Manufacture a peg wrench.
(c)Use the peg wrench to remove the support fittings, then install them in reverse position.

(4)Put the crane and the sling to the hoisting lugs of the stabilizer.
(Ref. Fig. 405)

(5)Slowly raise the sling with the crane sufficiently to tension the cables (35) and (36).
If necessary adjust the turnbuckles (37) to obtain even tension.

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B. Installation of the Sling P/N 98A55109001-002
(Ref. Fig. 404, 406)

(1)Remove and discard the self-adhesive covers (Mat. No. 05-052) of the hoisting points.

(2)Remove the plastic plugs P/N 35D55182822000 in the THS at the STA159 (RIB5), and the STA473 (RIB14) LH and RH side.
(***//AVM0//***)

(3)Remove the support fittings and install in reverse position at the STA259 (RIB9), and the STA323 (RIB11) LH and RH side.
(Ref. Fig. 404)
If support fitting cannot be easily removed:
(a)Drill two holes, 8 mm (0.315 in.) diameter to a depth of between 10 mm and 15 mm (0.394 and 0.591 in.) in the support fitting.
(b)Manufacture a peg wrench.
(c)Use the peg wrench to remove the support fittings, then install them in reverse position.

(4)Put the crane and the sling on the horizontal stabilizer.
(***//AVM0//***)

(5)Slowly raise the sling with the crane sufficiently to tension the cables (35) and (36).
If necessary adjust the turnbuckles (37) to obtain even presion.

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C. Removal
(Ref. Fig. 401, 403)

(1)Remove the elevator vertical torque-tubes (20). (Ref. Fig. 401)
(Ref. 27-31-21, P. Block 401).

(2)Put the container for the hydraulic fluid spillage.

CAUTION: MAKE SURE THAT THE HYDRAULIC FLUID DOES NOT COME INTO CONTACT WITH THE AIRCRAFT STRUCTURE.

(3)Disconnect all the hydraulic flexible hoses, (21) and (22), at rear and front of the THS center spar box.
   (a)Install the blanking caps on the flanged connections.
   (b)Install the blanking plugs in the flexible hoses.
   (c)Remove the spilled hydraulic fluid. (Ref. 51-00-00, P. Block 701).
(4)Disconnect the following electrical connectors on the bracket (11). (Ref. Fig. 401).
   (a)Connector 6077 VC-A (1), electrical harness 1716 VB/1P from receptacle 6077 VC.
   (b)Connector 6078 VC-A (2), electrical harness 1762 VB/2P from receptacle 6078 VC.
   (c)Connector 6018 VC-A (3), electrical harness 1713 VB/1A from receptacle 6018 VC.
   (d)Connector 6022 VC-A (4), electrical harness 1760 VB/2M from receptacle 6022 VC.
   (e)Connector 6014 VC-A (5), electrical harness 1764 VB/1M from receptacle 6014 VC.
   (f)Connector 6026 VC-A (6), electrical harness 1759 VB/2A from receptacle 6026 VC.
   (g)Connector 6019 VC-A (7), electrical harness 1714 VB/3A from receptacle 6019 VC.
   (h)Connector 6027 VC-A (8), electrical harness 1756 VB/4A from receptacle 6027 VC.
   (j)Connector 6012 VC-A (9), electrical harness 1715 VB/1S from receptacle 6012 VC.
   (k)Connector 6016 VC-A (10), electrical harness 1715 VB/1S from receptacle 6016 VC.
   (l)Fit the blanking caps to all the disconnected connectors and receptacles.
   (m)Coil up electrical harnesses and hang on the applicable support at the FR91.
(5)Remove the nuts (33), the bolts (30) and the washers (31), and disconnect the bonding straps (32). (Ref. 20-28-11, P. Block 1). (Ref. Fig. 403).
(6)Remove the flexible hose (27) from trim tank (TT). (Ref. 28-26-16, P. Block 401).
(7)Remove the vapor seal vent and drain from the TT. (Ref. 28-12-38, P. Block 401).
(8)Remove the support struts (25). (Ref. 53-10-47, P. Block 401).
(9)Install the distance struts P/N 98A27407568001 at the FR91. (Ref. 53-10-88, P. Block 401).
(10)Remove the upper and lower bolts of the attach fittings (26). (Ref. 53-10-88, P. Block 401).
(11)Install the strut fixture P/N 98A27407514001 to the fitting on brace of V-strut (FR87) and the THS center spar-box forward-fitting. (Ref. 55-16-36, P. Block 401).
(12)Remove the actuator hinge arms from the THS (Ref. 55-16-36, P. Block 401).

(13)Remove the distance struts P/N 98A27407568001.
(14)Remove the strut fixture P/N 98A27407514001.

CAUTION: ATTACH FITTINGS AT THE FR91 MUST NOT COME INTO CONTACT WITH THE HORIZONTAL STABILIZER. DO NOT DAMAGE VAPOR SEAL.

(15)Move the THS backwards away from the fuselage, and lower on an applicable support.
(16)Remove the eye-bolt from the FR91 (Ref. 53-10-88, P. Block 401).
(17)Remove the attach fittings from the FR91 (Ref. 53-10-88, P. Block 401).

D. Removal of the Sling P/N 98A55108013000
(Ref. Fig. 404, 405)

(1)Remove the sling from the THS.
(2)Remove the hoisting lugs and degrease with cleaning agent (Mat. No. 11-004).

CAUTION: WHEN YOU INSTALL THE HOISTING LUGS MAKE SURE THAT THE LUGS DO NOT TOUCH THE BOTTOM AREA OF THE HOIST POINT HOUSING. THIS WILL PREVENT DAMAGE TO THE THS AND FUEL LEAKAGE.

(3)Apply the corrosion preventive paste (Mat. No. 05-002) to the hoisting lugs and install in the THS flush with skin.
(4)Remove the support fittings and degrease with cleaning agent (Mat. No. 11-004).
(5)Apply corrosion preventive parts (Mat. No. 05-002) to the support fittings and install them in the horizontal stabilizer to be flush with skin.

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D. Removal of the Sling P/N 98A55109001-002
(Ref. Fig. 404, 406)
(1)Remove the sling from the THS.
(2)Install the plastic plugs P/N 35D55182822000.
(3)Remove the support fittings and degrease with cleaning agent (Mat. No. 11-004).
(4)Apply corrosion preventive parts (Mat. No 05-002) to the support fittings and install them in the horizontal stabilizer to be flush with skin.

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E. Preparation for Installation

(1)Clean all the connecting hardware, the attach fittings, the bellcranks and the pushrods on the THS spar box and the fuselage with a lint-free cloth moist in cleaning agent (Mat. No. 11-001) until contamination is removed. Do not let the cleaning agent dry on the surfaces.

F. Preparation of the Replacement Components

(1)Transfer the following items to replacement component:
- flight control system including autoflight system
- hydraulic system
- electric system
- trim tank system
- leading edges
- tips
- trailing edge sections
- trailing edge access panels

G. Installation
(Ref. Fig. 401, 403)

(1)Put the crane and the sling at the THS refering to the previous procedure "Installation of the Sling".
(2)Lift the THS into position at rear of the FR91.

CAUTION: ATTACH FITTINGS AT THE FR91 MUST NOT COME INTO CONTACT WITH HORIZONTAL STABILIZER. DO NOT DAMAGE VAPOR SEAL.

(3)Move the THS forward until that the rear spar of the center spar box is in line with the FR91.
(4)Install the strut fixture P/N 98A27407514001 at the center spar-box forward-fitting and the FR87.
(5)Install the distance struts P/N 98A27407568001 at the center spar-box rear-spar and the FR91.
(6)Put the attach fittings (26), install the upper and lower bolts. (Ref. 53-10-88, P. Block 401).
(7)Install the eyebolt at the FR91. (Ref. 53-10-88, P. Block 401).
(8)Install the actuator hinge arms at the THS. (Ref. 55-16-36, P. Block 401).
(9)Remove the strut fixture P/N 98A27407514001.
(10)Remove the distance strut P/N 98A27407568001.
(11)Install the support struts (25). (Ref. 53-10-47, P.Block 401).
(12)Remove the sling from the THS refering to the previous procedure "Removal of the Sling".
(13)Install the self-adhesive covers (Mat. No. 05-052) over the hoisting points (Ref. 11-20-00, P. Block 1).
(14)Adjust the THS. (Ref. 55-10-11, P. Block 501).
(15)Install the bonding straps (32) with the bolts (30), the washers (31) and the nuts (33). (Ref. 20-28-11 P.Block 1). (Ref. Fig. 403)
(16)Connect the following electrical connectors to the receptacles on the bracket (11). (Ref. Fig. 401)
(a)Uncoil the electrical harnesses.

(b)Remove the blanking caps from all disconnected connectors and receptacles.
(c)Connector 6077 VC-A (1), electrical harness 1716 VB/1P to receptacle 6077 VC.
(d)Connector 6078 VC-A (2), electrical harness 1762 VB/2P to receptacle 6078 VC.
(e)Connector 6018 VC-A (3), electrical harness 1713 VB/1A to receptacle 6018 VC.
(f)Connector 6022 VC-A (4), electrical harness 1760 VB/2M to receptacle 6022 VC.
(g)Connector 6014 VC-A (5), electrical harness 1764 VB/1M to receptacle 6014 VC.
(h)Connector 6026 VC-A (6), electrical harness 1759 VB/2A to receptacle 6026 VC.
(j)Connector 6019 VC-A (7), electrical harness 1714 VB/3A to receptacle 6019 VC.
(k)Connector 6027 VC-A (8), electrical harness 1756 VB/4A to receptacle 6027 VC.
(l)Connector 6012 VC-A (9), electrical harness 1715 VB/1S to receptacle 6012 VC.
(m)Connector 6016 VC-A (10), electrical harness 1715 VB/1S to receptacle 6016 VC.

(17)Install the flexible hose (27) at trim tank. (Ref. 28-26-16, P. Block 401).
(18)Install the vapor seal vent and drain pipes at TT. (Ref. 28-12-38, P. Block 401).
(19)Put the container for the hydraulic fluid spillage.

CAUTION: MAKE SURE THAT THE HYDRAULIC FLUID DOES NOT COME INTO CONTACT WITH AIRCRAFT STRUCTURE.

(20)Connect the hydraulic-system flexible hoses to the unions on rear and front spar of THS center spar box. (Ref. Fig. 401)
(a)Remove the blanking caps from the flanged connections.
(b)Remove the blanking plugs from the flexible hoses.
(c)Connect the coupling nuts on the hydraulic lines (21) and (22) to the related flanged connector with hydraulic fluid of the system as a thread lubricant.
(d)Torque the coupling nuts on the pressure lines (22) to between 3.40 and 3.72 m.daN (25 and 27.4 lbf.ft.).
(e)Torque the coupling nuts on the return lines (21) to between 4.90 and 5.38 m.daN (36 and 39.7 lbf.ft).
(f)Remove the spilled hydraulic fluid. (Ref. 51-00-00, P. Block 701).
(g)Apply corrosion preventive compound (Mat. No. 05-005) with a brush to visible cadmium plated items.
(h)Apply moisture removing oil (Mat. No. 05-027) and corrosion preventive compound (Mat. No. 05-005) to all machined parts. (Ref. 51-75-10, P. Block 801).
(21)Install the elevator vertical torque-tubes (20). (Ref. 27-31-21, P. Block 401).(Ref. Fig. 401)
(22)Install the cone. (Ref. 53-19-11, P. Block 401).

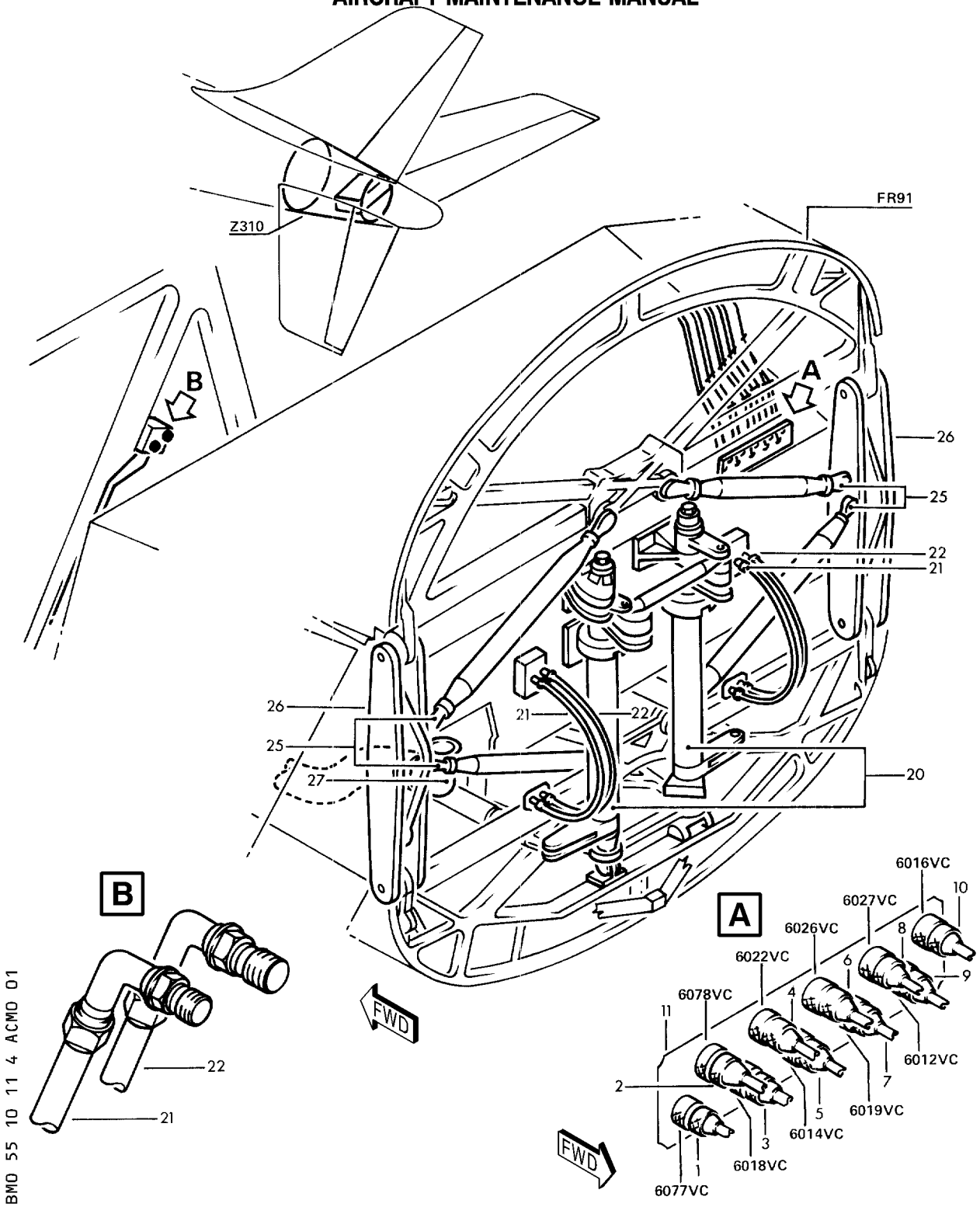
(23)Install the fairing supports, the support struts an LH and RH THS inner leading-edges. (Ref. 55-12-11, P. Block 401).
(24)Install the aprons. (Ref. 55-15-11, P. Block 401).
(25)Install the elevator servo controls. (Ref. 27-34-11, P. Block 401).
(26)Install the LH and RH elevators. (Ref. 27-31-24, P. Block 401).
(27)Install the trailing edge access panels. (Ref. 55-13-13, P. Block 401).
(28)Remove safety clips and tags, and close circuit breakers opened
(29)Make sure that the travel ranges of the THS and elevators are clean of tools and other item.

H. Test

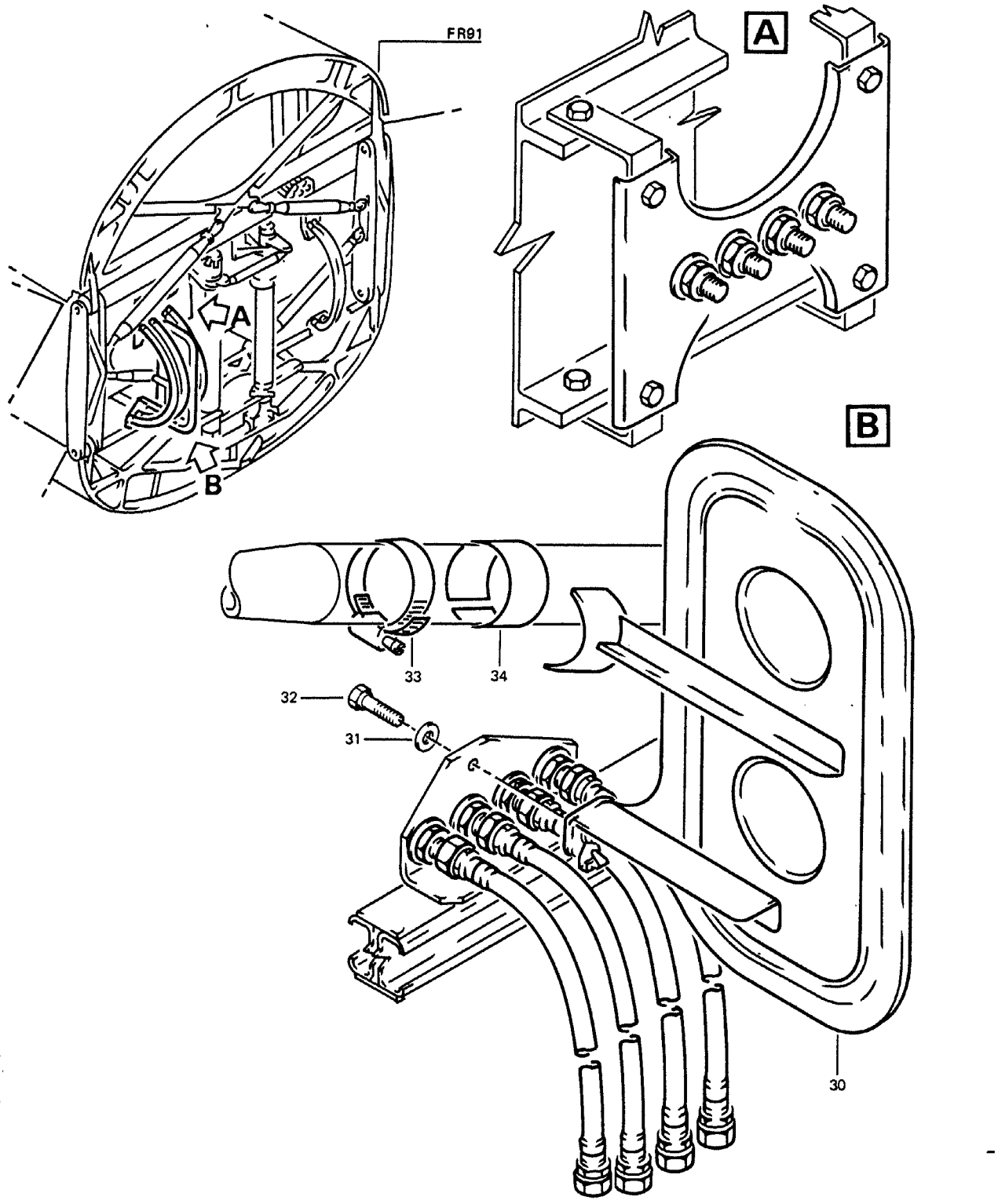
(1)Return the THS to the serviceable condition. (Ref. 55-00-00, P. Block 301).
(2)Check the hydraulic connections for leaks.
(3)Do the test of the elevator mechanical controls (Ref. 27-31-00, P. Block 501).
(4)Do the functional test of the control-surface position-indicating (Ref. 27-45-00, P. Block 501).
(5)Do the functional test of the elevator control-surface position-indicating (Ref. 27-35-00, P. Block 501).
(6)Do the functional test of the THS controls (Ref. 27-41-00, P. Block 501).
(7)Transfer the fuel to the TT (Ref. 28-25-00, P. Block 301) or refuel the TT and the fuel lines (Ref. 12-11-28, P. Block 301).
(8)Check the fuel connections for leaks (Ref. 28-13-00, P. Block 501).
(9)Do the fuel tank system test (Ref. 28-26-00, P. Block 501).
(10)Do the TT isolation-valve test (Ref. 28-22-00, P. Block 501.
(11)Do the fuel-level sensing test (Ref. 28-46-00, P. Block 501).
(12)Do the test of servo-control jamming detection (Ref. 27-14-00, P. Block 501).
(12)Do the adjustment/test of logo lights (Ref. 33-47-00, P. Block 501).
(13)Do the autopilot functional test (Ref. 22-13-23, P. Block 401).

J. Close-Up

(1)Make sure that the work area is clean and clear of tools and other equipment.
(2)Remove the hydraulic fluid spillage container.
(3)Return the THS to the serviceable condition. (Ref. 55-00-00, P. Block 301).
(4)Remove the access platforms.



THS Connections and Attachment Points
Figure 401



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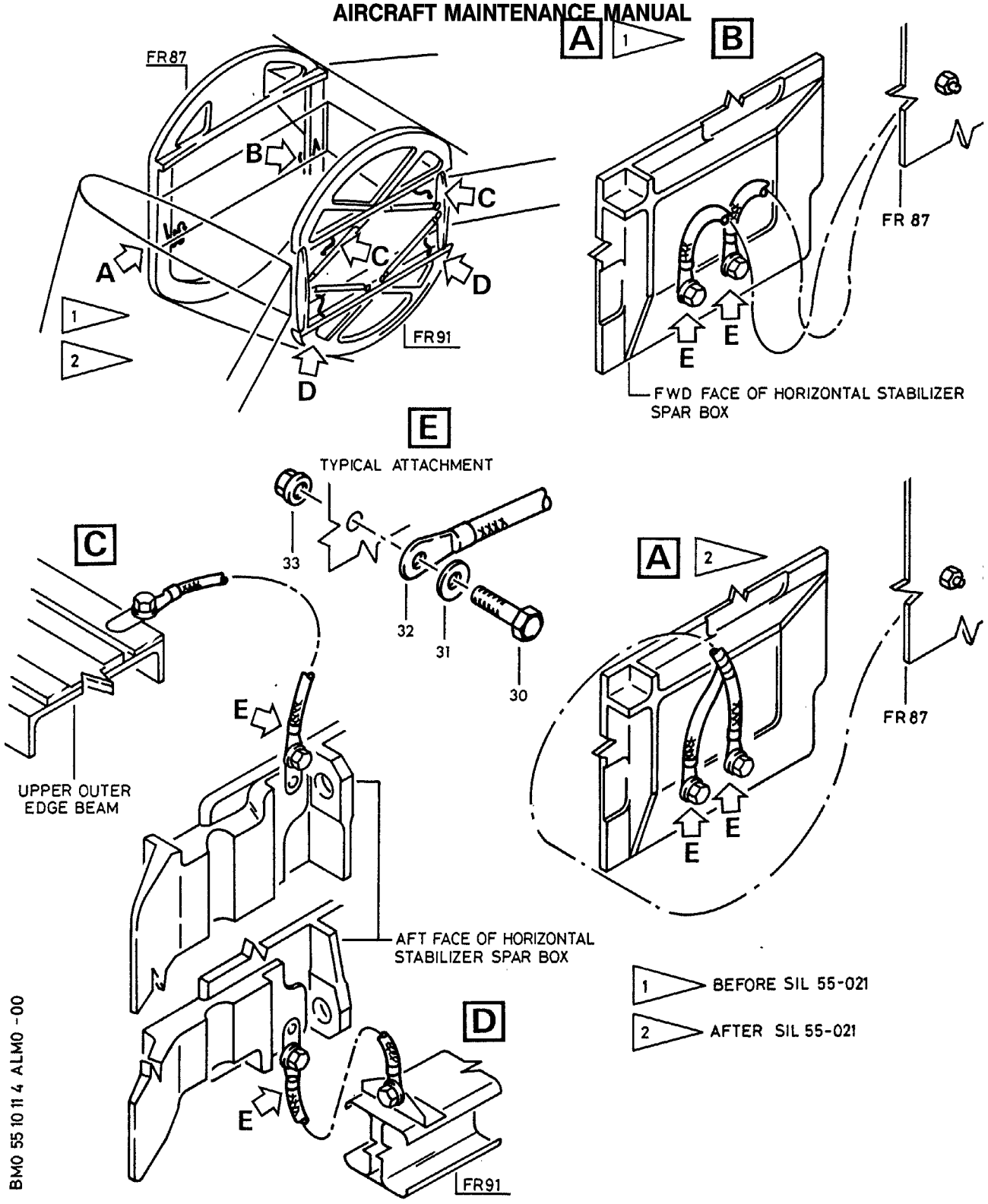
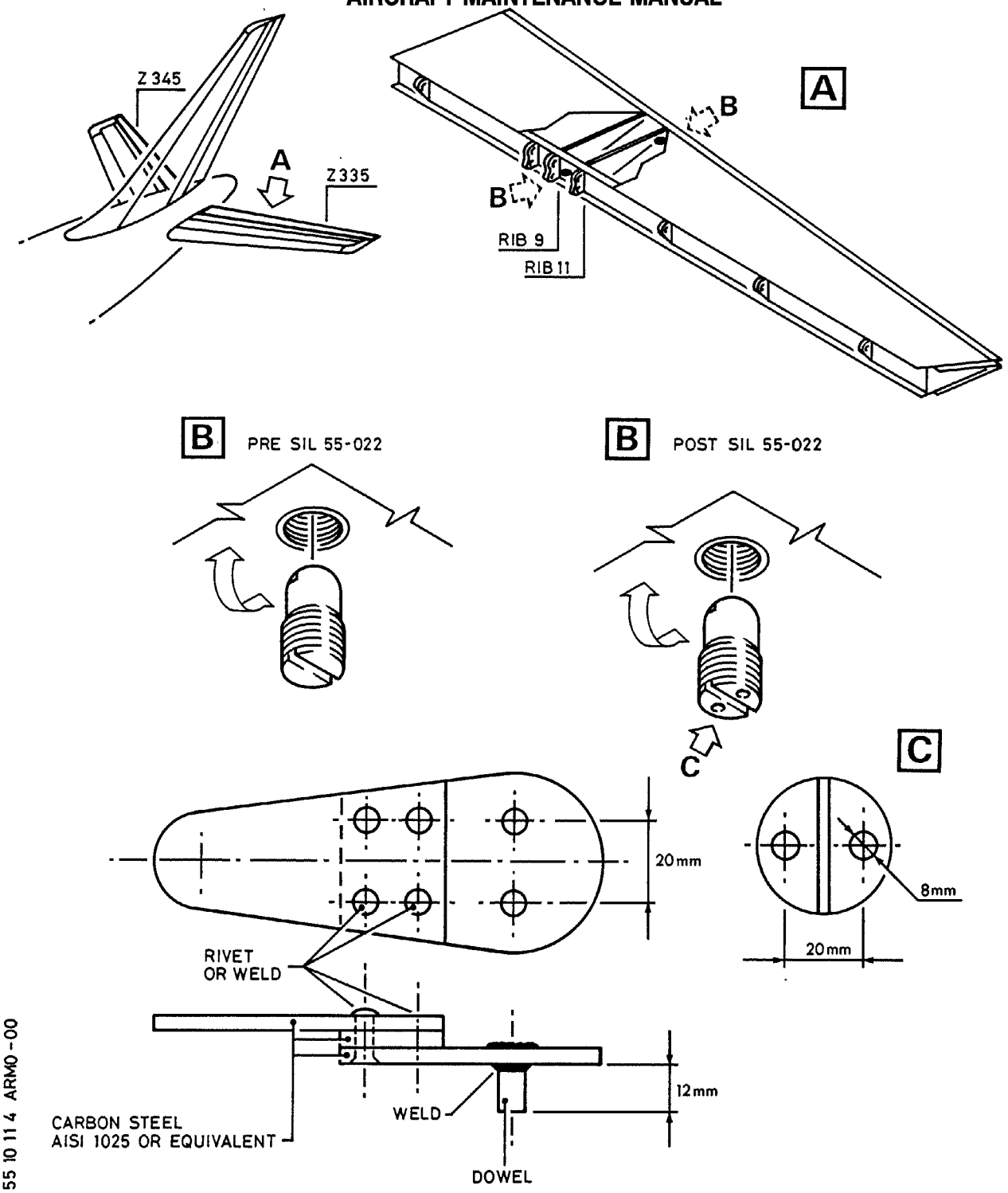
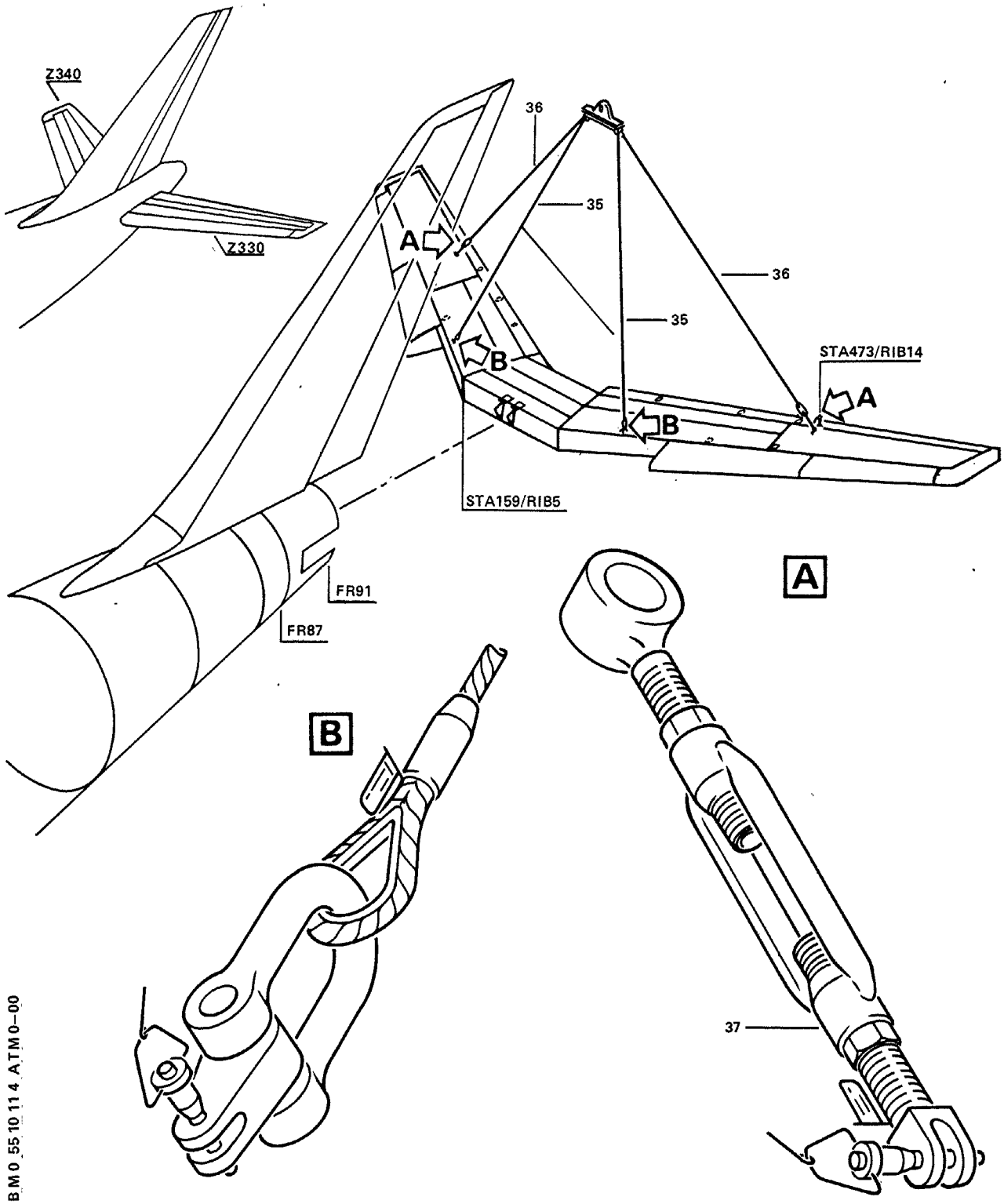
Baffle Plate
Figure 402



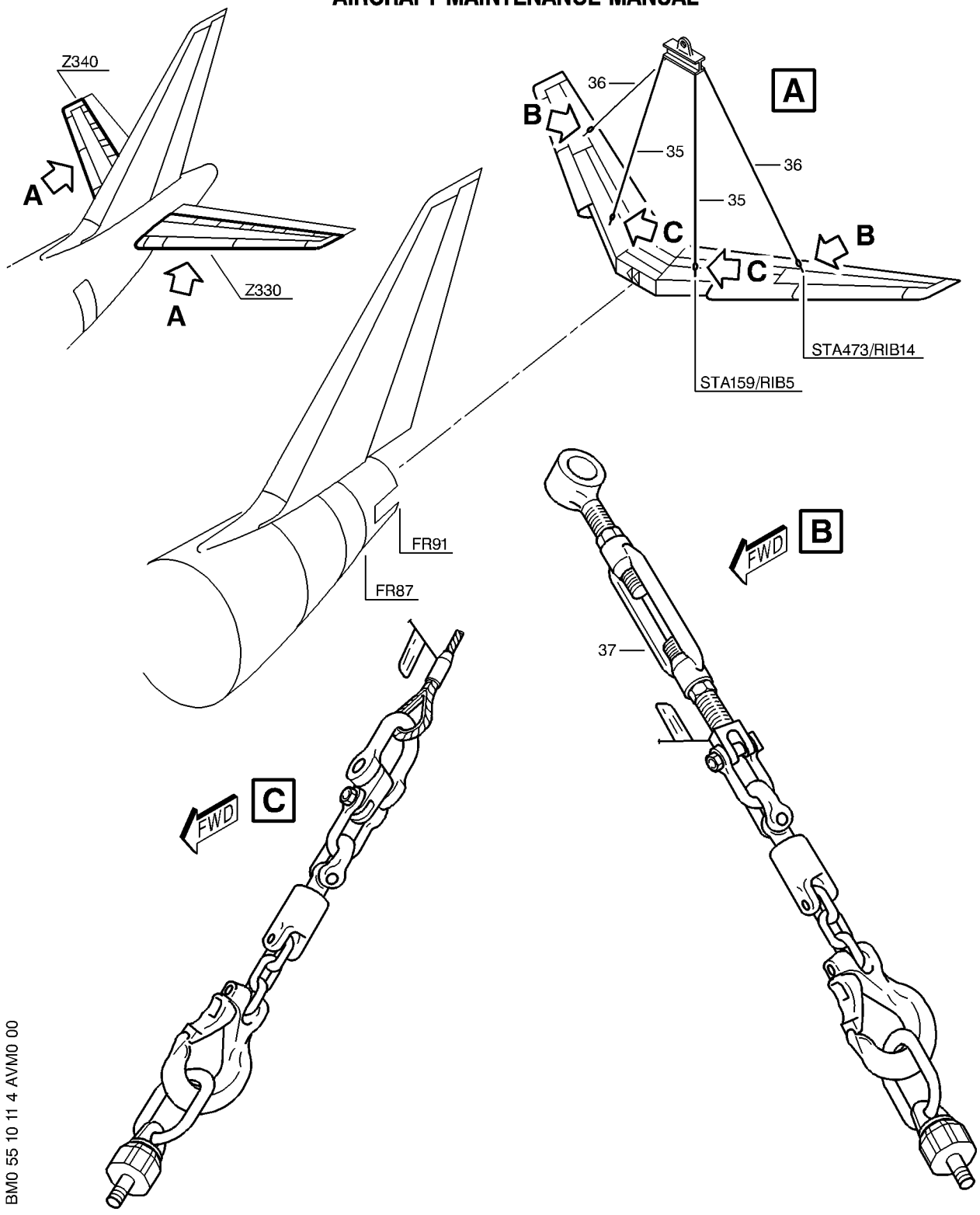
Bonding Straps
Figure 403



Support Fittings
Figure 404



Slinging of Horizontal Stabilizer
Figure 405



Slinging of Horizontal Stabilizer
Figure 406

TRIMMABLE HORIZONTAL STABILIZER - ADJUSTMENT/TEST

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301.)

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 8 m (26 ft.)
B.	Torque Wrench, up to 10 m.daN (74 lbf.ft.)
C.	Corrosion-Resistant Steel Lockwire, 1.6 mm (0.06 in.) dia.
D. Material No. 05-002	Special Materials (Ref. 20-31-00)

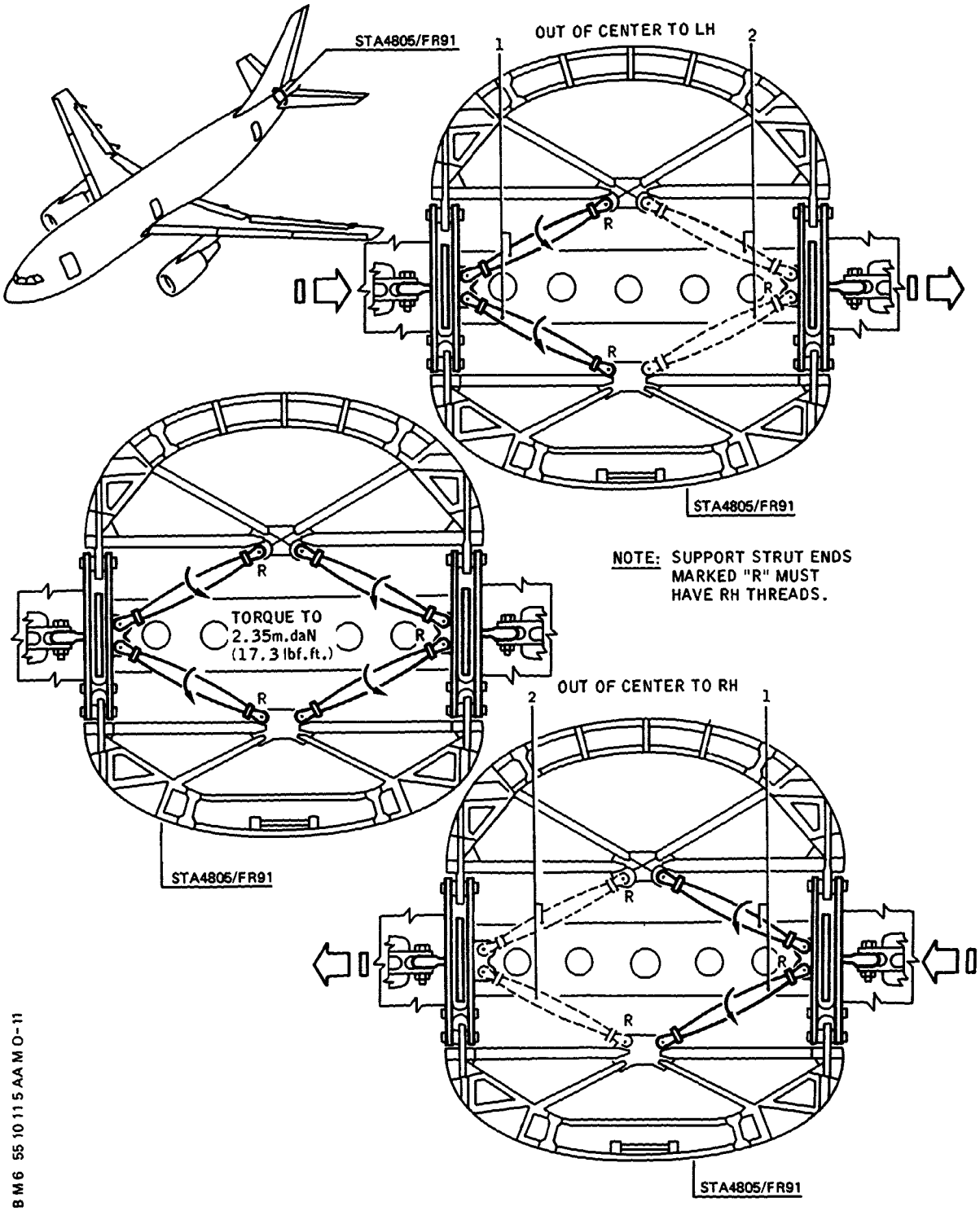
Referenced Procedures

- 12-22-55, P. Block 1	Horizontal Stabilizer (THS Zone)
- 20-28-11, P. Block 1	Electrical Bonding
- 27-41-00, P. Block 501	Mechanical Control (THS)
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-15-11, P. Block 401	Horizontal Stabilizer Apron

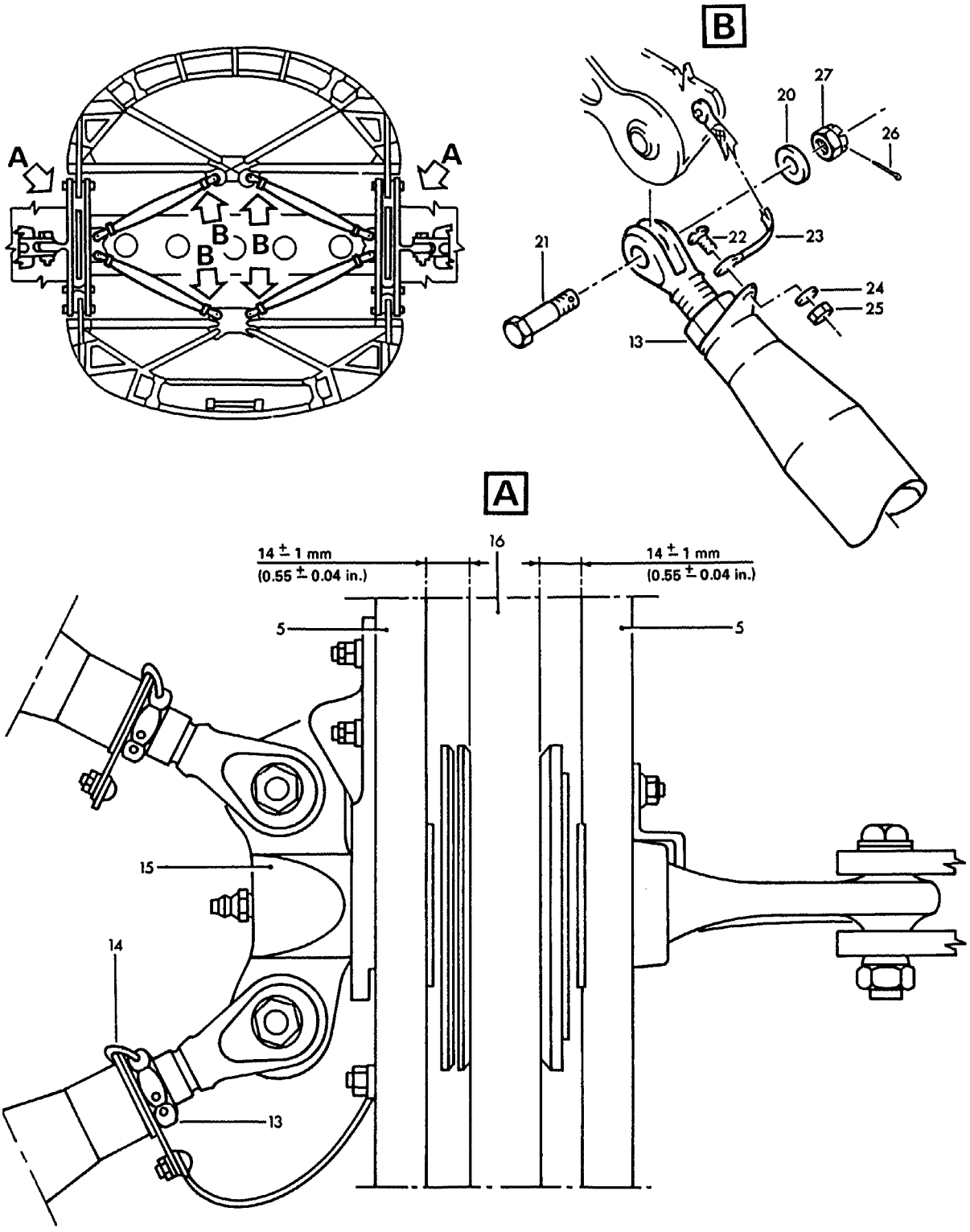
2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizer safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Open access door 313AL.
(4)Remove horizontal stabilizer aprons (Ref. 55-15-11, P. Block 401).
(5)Lubricate eyebolts (15) (Ref. Fig. 502) (Ref. 12-22-55, P. Block 1).

B. Adjustment of Horizontal Stabilizer (Ref. Fig. 501, 502)
(1)Determine to which side the horizontal stabilizer is out of center.
(a)The horizontal stabilizer is out of center to that side where the outer gap, between horizontal stabilizer attach fittings (5) and horizontal stabilizer support fitting (16), is smaller.
(2)Remove lockwire (14) and loosen lock nuts (13) of support struts (1, 2).
(3)Remove support struts (1 or 2) from upper and lower attach fittings on that side to which the horizontal stabilizer must be moved (Ref. Fig. 502).
(a)Remove nuts (25), washers (24), bolts (22) and bonding straps (23).
(b)Remove lockwire, release locknuts (13) and release tension on support struts (1 or 2).
(c)Remove cotter pins (26), nuts (27), washers (20), bolts (21) and support struts (1 or 2).



Adjustment of Horizontal Stabilizer
Figure 501



Gaps at Center Attachment
Figure 502

(4)Shorten remaining support struts by turning the tube so that the horizontal stabilizer moves inwards towards the center of the aircraft.
(a)Adjust horizontal stabilizer so that gaps, between horizontal stabilizer attach fittings (5) and horizontal stabilizer support fitting (16), are equal 14 ± 1.0 mm (0.55 ± 0.04 in.).
(5)Install support struts (1 or 2) (Ref. Fig. 502).
(a)Apply corrosion-preventive paste (Mat. No. 05-002) to bolts (21).
(b)Position support struts (1 or 2) and install bolts (21), washers (20) and nuts (27).
NOTE : The ends of struts with RH thread (marked red) must be attached to the fittings identified with 'R' (Ref. Fig. 501).
(c)TORQUE nuts (27) to 2.0 m.daN (14.75 lbf.ft.) and safety with cotter pins (26).
(d)TORQUE support struts (1 or 2) to 2.35 m.daN (17.3 lbf.ft.) by turning tube, tighten locknuts (13) and TORQUE to 9.8 m.daN (72.3 lbf.ft.). Safety locknuts (13) with lockwire.
(e)Position bonding straps (23) and install bolts (22), washers (24) and nuts (25) (Ref. 20-28-11, P. Block 1).
(6)TORQUE support struts (1 or 2) to 2.35 m.daN (17.3 lbf.ft.).
(7)TORQUE locknuts (13) to 9.8 m.daN (72.3 lbf.ft.) and safety with lockwire (14).
(8)Make certain that travel ranges of horizontal stabilizer and elevators are clear.

C. Test
(1)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of horizontal stabilizer control (Ref. 27-41-00, P. Block 501).
(3)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

D. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Close access door 313AL.
(3)Install horizontal stabilizer aprons (Ref. 55-15-11, P. Block 401).
(4)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(5)Remove access platform.

HORIZONTAL STABILIZER SPAR BOX - DESCRIPTION AND OPERATION

1. General

A. The horizontal stabilizer spar box is the main structural component of the horizontal stabilizer to which all other components are attached. The complete spar box is made up of the LH and RH spar boxes, to which the elevators are attached, and the center spar box to form a single unit. The three spar boxes cannot be separated.

B. The gaps between the spar box and the fuselage are covered by the horizontal stabilizer aprons which are attached to the spar box at RIBS 3 LH and RH.

C. The main components of the spar box are the front and rear spars, ribs, skin panels and attach fittings. For details of attach fittings refer to 55-16-00.

2. Description and Operation (Ref. Fig. 001)

A. Spars
(1) The front and rear spars in the tank area are machined aluminum alloy plates. The remaining area of spars are web panels with lightening holes.

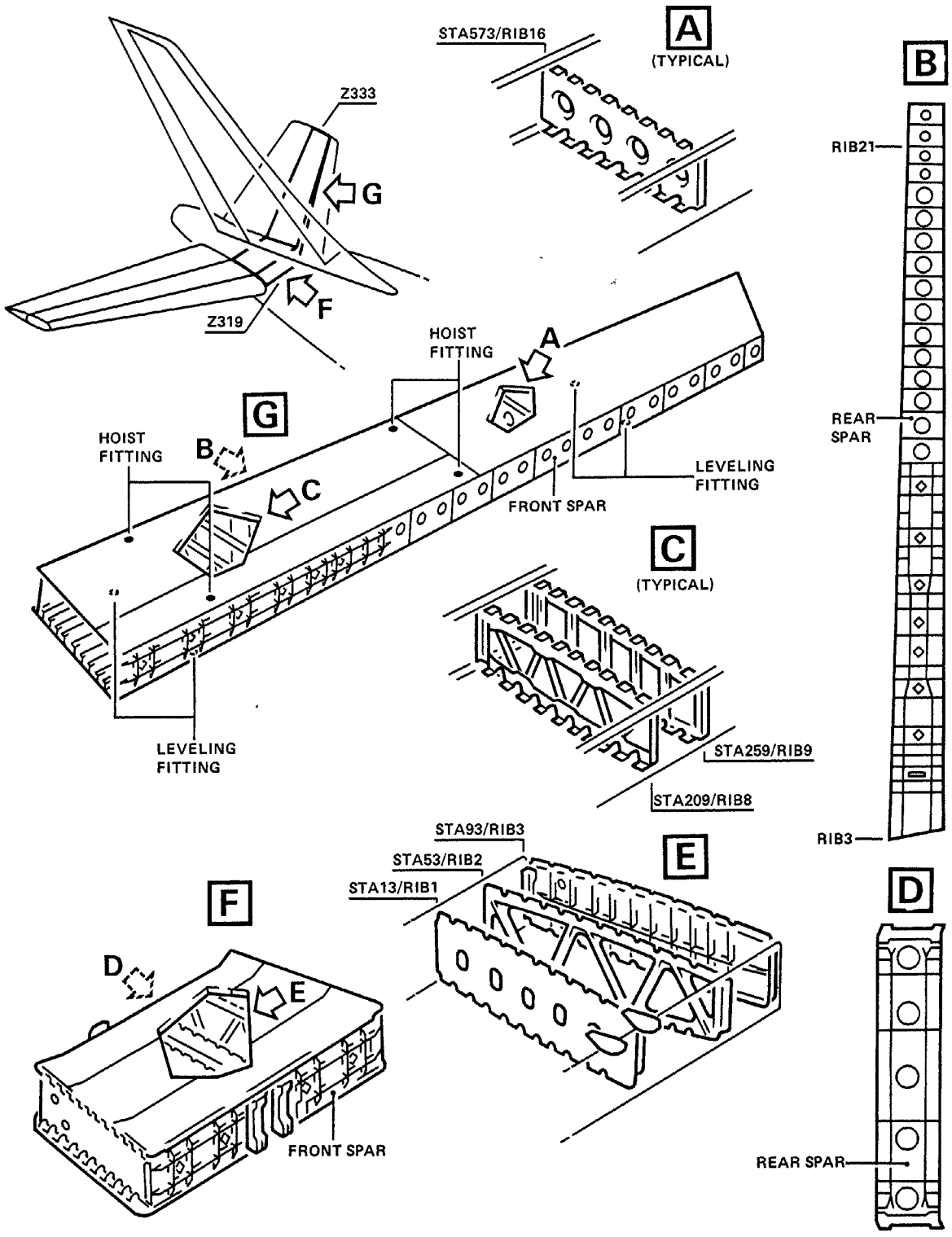
B. Ribs
(1) The horizontal stabilizer spar box has 19 main ribs, numbered 1 to 21, and one end-rib each side of the aircraft centerline.
The ribs are either milled from solid aluminum alloy plate with lightening holes for transfer of fuel or are riveted open frame assemblies. RIB19 LH and RIB18 RH are tank boundary ribs.
A surge/vent tank is located between RIB18 and RIB20 RH.

C. Skin
(1) The top and bottom skin panels are machined parts with integral stringers. A series of manholes, with cover plates, are included in the bottom panel.

D. Hoist Fittings
(1) Four hoist fittings are provided on each of the LH and RH spar boxes. They are located adjacent to the front and rear spars at RIB 5 and 14. Each fitting comprises an eyebolt screwed into a threaded bracket. The eyebolts are installed with the eye-end innermost and covered by a self-adhesive aluminum disc. When required for use, the eyebolts are removed and installed with the eye-end protruding outside the spar box.

E. Support Fittings
(1) Two support fittings are provided on each of the LH and RH spar boxes. They are located adjacent to the front and rear spars at RIB 9 and RIB 11. Each fitting has a dome head and threaded shank and is screwed into a threaded mounting bracket. The fitting is normally installed with the dome head innermost and with the lower end flush with the lower skin surface.
Post SIL 55-022
The lower end of the fitting has two drillings for installation of a peg wrench for removal.

F. Levelling Fittings
(1) Levelling fittings are located adjacent to the front and rear spars at RIBS 5 and 18.



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Horizontal Stabilizer Spar Box
Figure 001

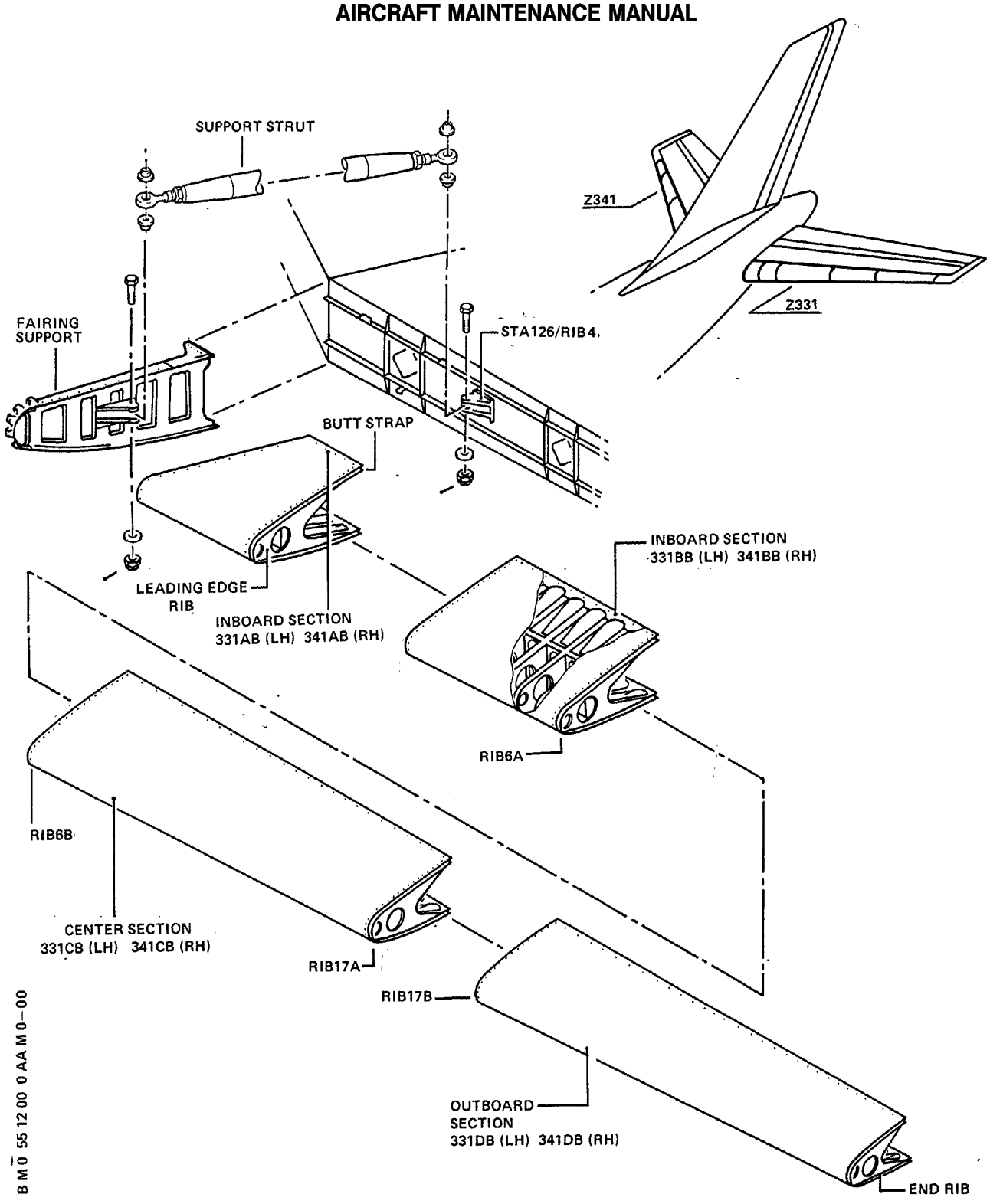
HORIZONTAL STABILIZER LEADING EDGE
DESCRIPTION AND OPERATION

1. General

   A. The horizontal stabilizer leading edge comprises four aerodynamic sections and one fairing support on each side.

2. Description (Ref. Fig. 001)

   A. Each leading edge section has a structural framework of ribs and webs covered by skin panels made of aluminum alloy. The sections are attached to the flanges of the front spar, and to butt straps, by countersunk screws. The fairing support, which is removable, is attached to the inboard edge of the inboard section and to the front spar. It supports the apron at the fuselage. An adjustable strut is connected between the fairing support and the front spar.



Horizontal Stabilizer Leading Edge
Figure 001

HORIZONTAL STABILIZER LEADING EDGE REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reasons for the Job

A. Replacement of leading edge

B. Removal of horizontal stabilizer

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 8 m (26 ft.)
B. Material No. 05-002	Special Materials (Ref. 20-31-00)
C. Material No. 05-005	Special Materials (Ref. 20-31-00)
D. Material No. 05-013	Special Materials (Ref. 20-31-00)
E. Material No. 09-013	Sealants (Ref. 20-31-00)
F. Material No. 09-019	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
- 55-15-13, P. Block 401	Trimmable Horizontal Stabilizers Apron - Removal/Installation

3. Procedure

A. Job Set-Up
(1)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(2)Not applicable

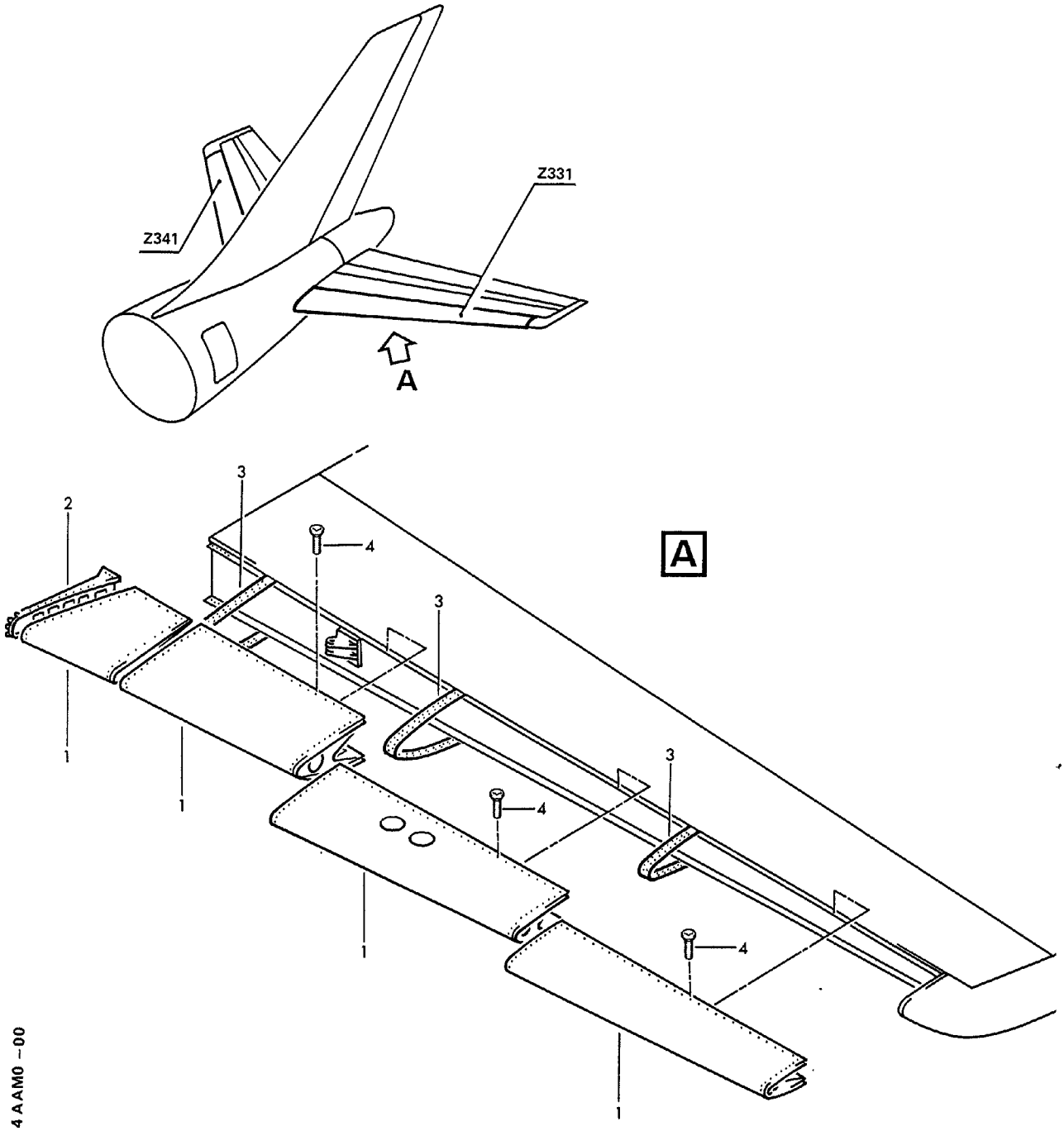
(3)Position access platform.

B. Removal (Ref. Fig. 401, 402)
(1)Remove screws (4).
(2)Remove leading edges (1) and butt-straps (3).
(3)Remove support strut (16) as follows:
(a)Remove cotter pin (20), nut (19), washer (18) and bolt (15).
(b)Disconnect strut (16) and secure bushes (17) temporarily.
(4)Remove the front, the upper and the lower aprons
(Ref.55-15-11, P.Block 401)
(5)Remove bolts (24) and washers (23), retaining plates (22) and fairing support(2).
(6)Disconnect electrical connector 6058VCA of logo-lights as necessary.

C. Preparation for Installation
(1)Check sealant (Mat. No. 09-013) on mating surfaces of spar box, butt straps (3) and fairing support (2) for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of leading edge (1), as necessary.
(3)Check anchor nuts on retaining plate (22) for damage and renew, as necessary.
(4)Measure and record distance between eye-end centers of removed support strut.
(5)Adjust replacement support strut (16) as previously recorded.
(6)Make certain that locknuts (21) of support strut (16) are safetied.

D. Installation (Ref. Fig. 401, 402)
(1)Position fairing support (2), retaining plates(22) and install bolts (24) and washers (23).
(2)Install support strut (16) as follows:
(a)Connect support strut (16).
(b)Check that holes of eye-ends and fittings are aligned.
NOTE : Adjust support strut (16) if necessary.
NOTE : Gap between fairing support and fuselage should be 16.0 + 5.0 - 2.0 mm (0.629 + 0.196 - 0.078 in).
(c)Install bolt (15), washer (18), nut (19) and cotter pin (20).
(d)Apply corrosion-preventive compound (Mat. No. 05-005) to all visible cadmium-plated steel parts.
(3)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (4).
(4)Not applicable
(5)Position butt-straps (3).
(6)Position leading edges (1) and install screws (4).
(7)If a new leading edge has been installed, check that gaps between leading edges (1) and between leading edge and sparbox skin does not exceed 3.0 mm (0.118 in.).
(8)Seal gaps between leading edges (1) and gaps between leading edges and spar box with sealant (Mat. No. 09-019).
(9)Install the front, the upper and the lower aprons
(Ref. 55-15-11, P. Block 401)

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Not applicable
(3)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
(4)Remove access platform.



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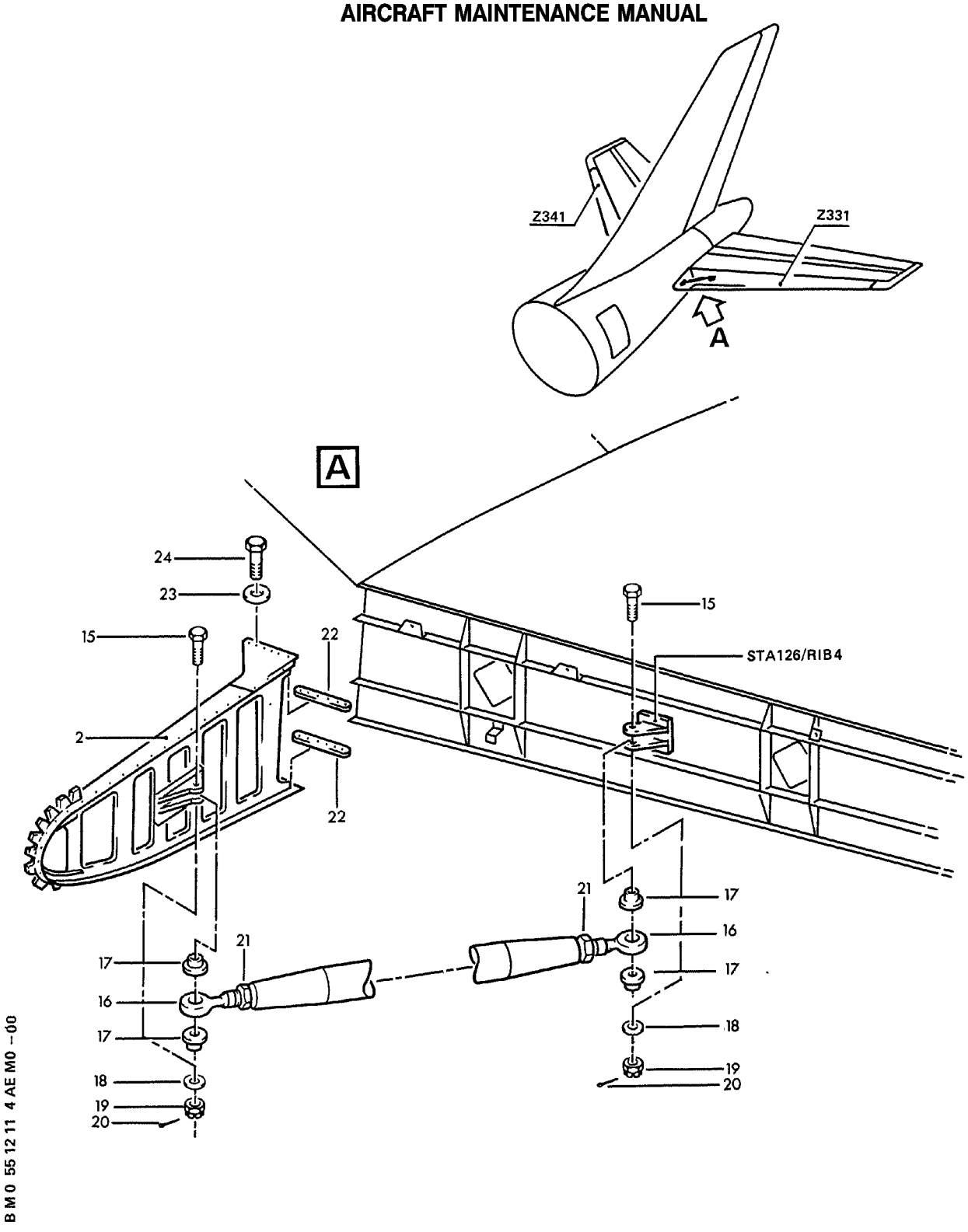
Horizontal Stabilizer Leading Edge
Figure 401



Support Strut
Figure 402

HORIZONTAL STABILIZER TRAILING EDGE DESCRIPTION AND OPERATION

1. General

A. The trailing edge of the horizontal stabilizer comprises a framework attached to the rear spar and removable access panels.

B. The trailing edge is located in zones 334 LH and 344 RH.

2. Description (Ref. Fig. 001, 002)

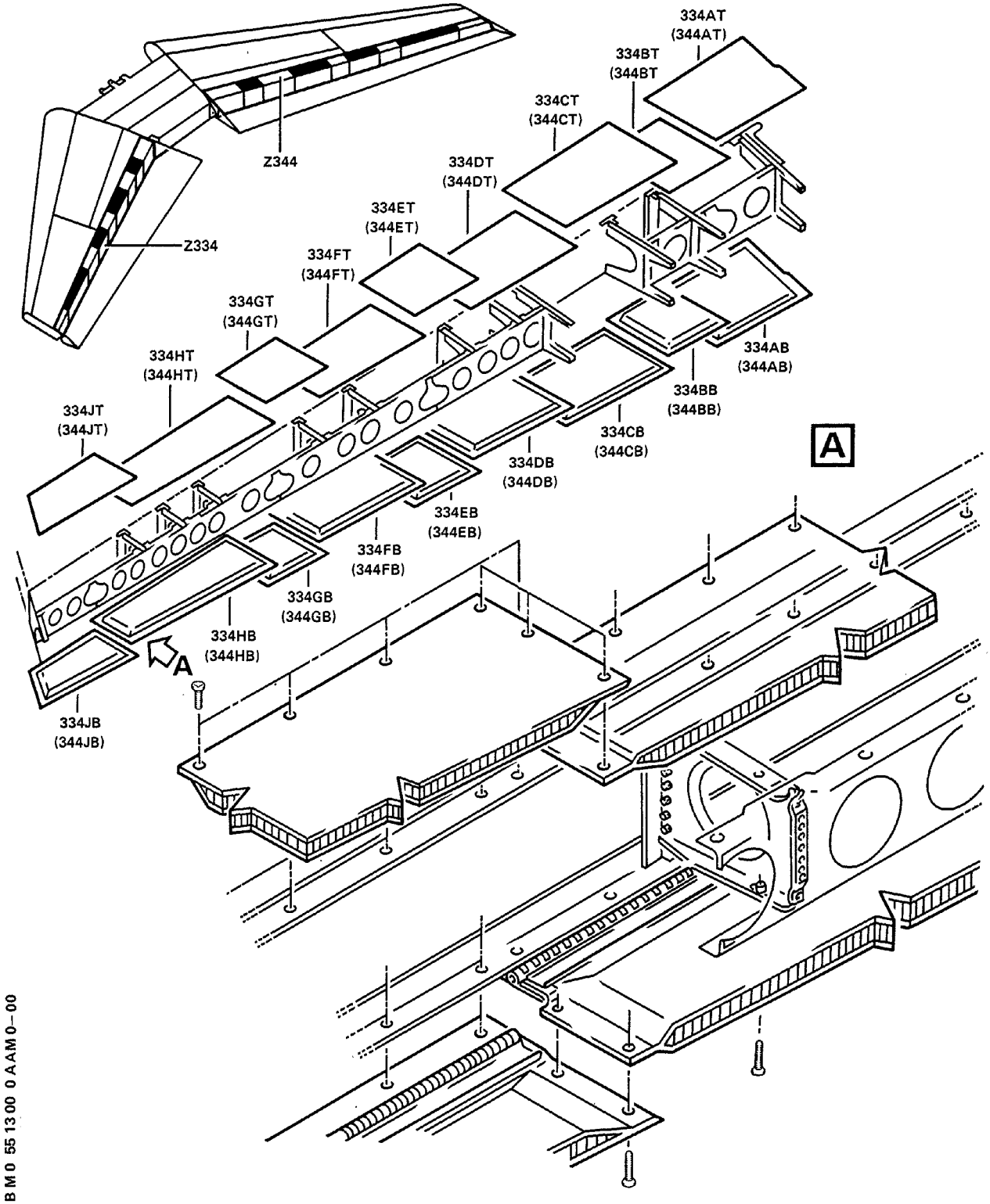
A. Trailing Edge Frame

(1) The trailing edge frame is a riveted frame work of aluminum alloy angle sections.

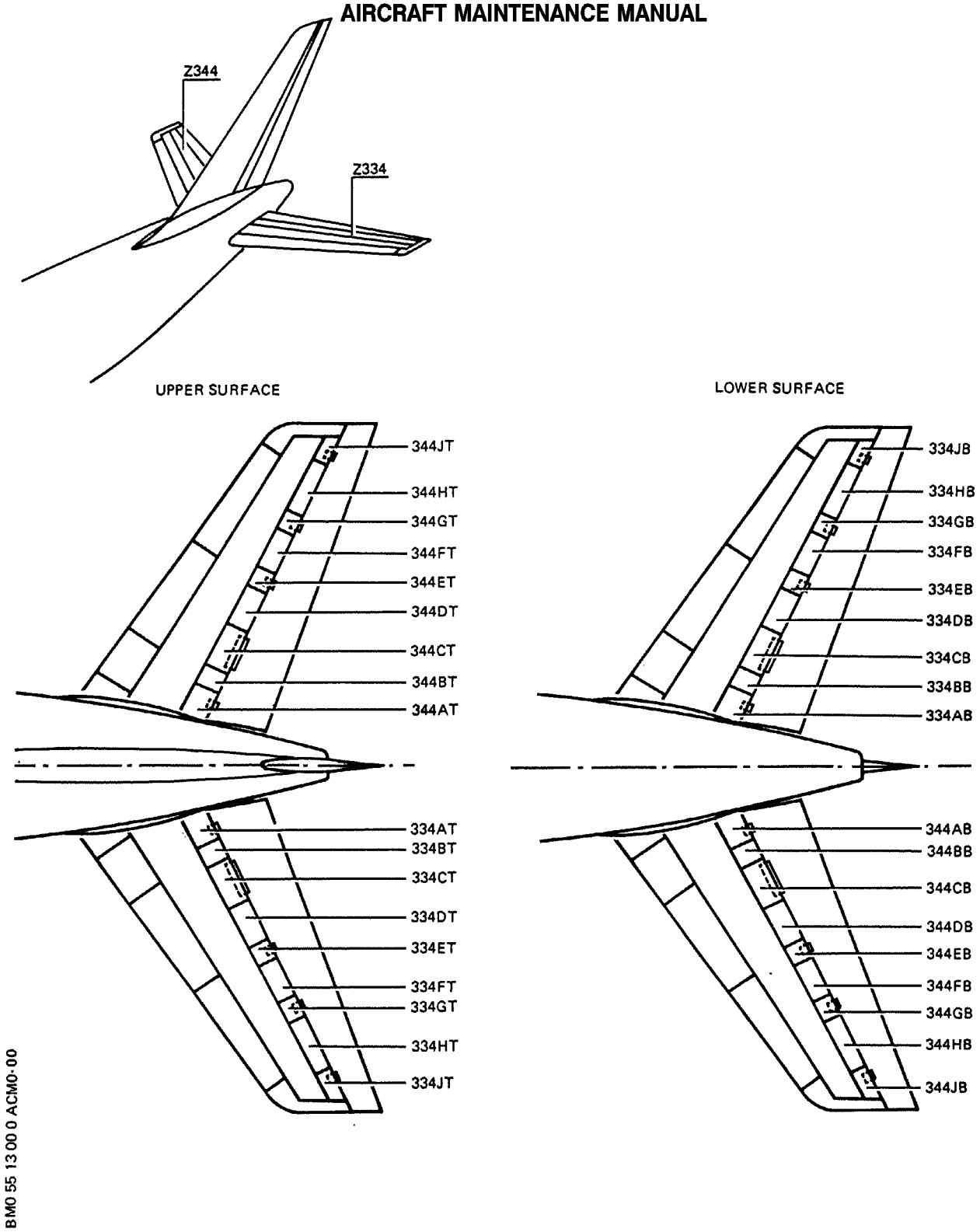
B. Trailing Edge Panels

(1) The LH trailing edge upper and lower surfaces comprise four trailing edge sections and five access panels each. The lower sections and panels are attached to the spar box by piano hinges and screws. The upper section and panels are attached by screws only. The panels are constructed of honeycomb core covered with laminations of resin-fiber composites.

(2) The RH trailing edge is similar to the LH trailing edge.



Horizontal Stabilizer Trailing Edge
Figure 001



Horizontal Stabilizer Trailing Edge
Figure 002

HORIZONTAL STABILIZER TRAILING EDGE REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, 5.5 and 6.5 m (18 and 21 ft.)
B. 98A27307549000	Pin - Rigging, Elevator Control Bellcranks
C. Material No. 05-002	Special Materials (Ref. 20-31-00)
D. Material No. 05-013	Special Materials (Ref. 20-31-00)
E. Material No. 09-016	Sealants (Ref. 20-31-00)
R F. Material No. 09-019	Sealants (Ref. 20-31-00)

Referenced Procedures

- 51-76-10, P. Block 801 — Repair of Sealing
- 55-00-00, P. Block 301 — Stabilizers - Standard Warnings and Procedures
- 55-13-13, P. Block 401 — Trailing Edge Access Panels

2. Procedure

A. Job Set-Up

(1)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

(2)Open, safety and tag the following circuit breakers:

PANEL	SERVICE	IDENT.	LOCATION
132VU	LIGHTING-EXTERIOR/LT-LOGO/L	1LY	323/M79
132VU	LIGHTING-EXTERIOR/LT-LOGO/R	3LY	323/M82

(3)Position access platform.

(4)Remove access panels 334CT/CB and 344CT/CB (Ref. 55-13-13, P. Block 401).

(5)Install rigging pin P/N 98A27307549000 on elevator control bellcrank at RIB9.

(6)Remove trailing edge access panels (Ref. 55-13-13, P. Block 401).

B. Removal (Ref. Fig. 401)

(1)For removal of upper sections (2) 334/344BT, 334/344DT, 334/344FT and 334/344HT remove screws (1) and sections (2).

(2)Remove electrical connector of Logo lights as necessary.

(3)For removal of lower sections (3) 334/344BB, 334/344DB, 334/344FB and 334/344HB remove screws (1) and sections (3).

C. Preparation for Installation (Ref. Fig. 401)
(1)Check sealant (Mat. No. 09-016) on mating surfaces of spar box and trailing edge sections (2, 3) for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of trailing edge sections (2, 3)which contact spar box.
(3)Check anchor nuts on trailing edge sections (2, 3) for damage and renew as necessary.
(4)Check brushes (5) on trailing edge sections (2, 3) for good condition and replace as necessary.

D. Installation (Ref. Fig. 401)
(1)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (1).
(2)Install lower sections (3) 334/344BB, 334/344DB, 334/344FB, 334/344HB and screws (1).
(3)Install upper sections (2) 334/344BT, 334/344DT, 334/344FT, 334/344HT and screws (1).

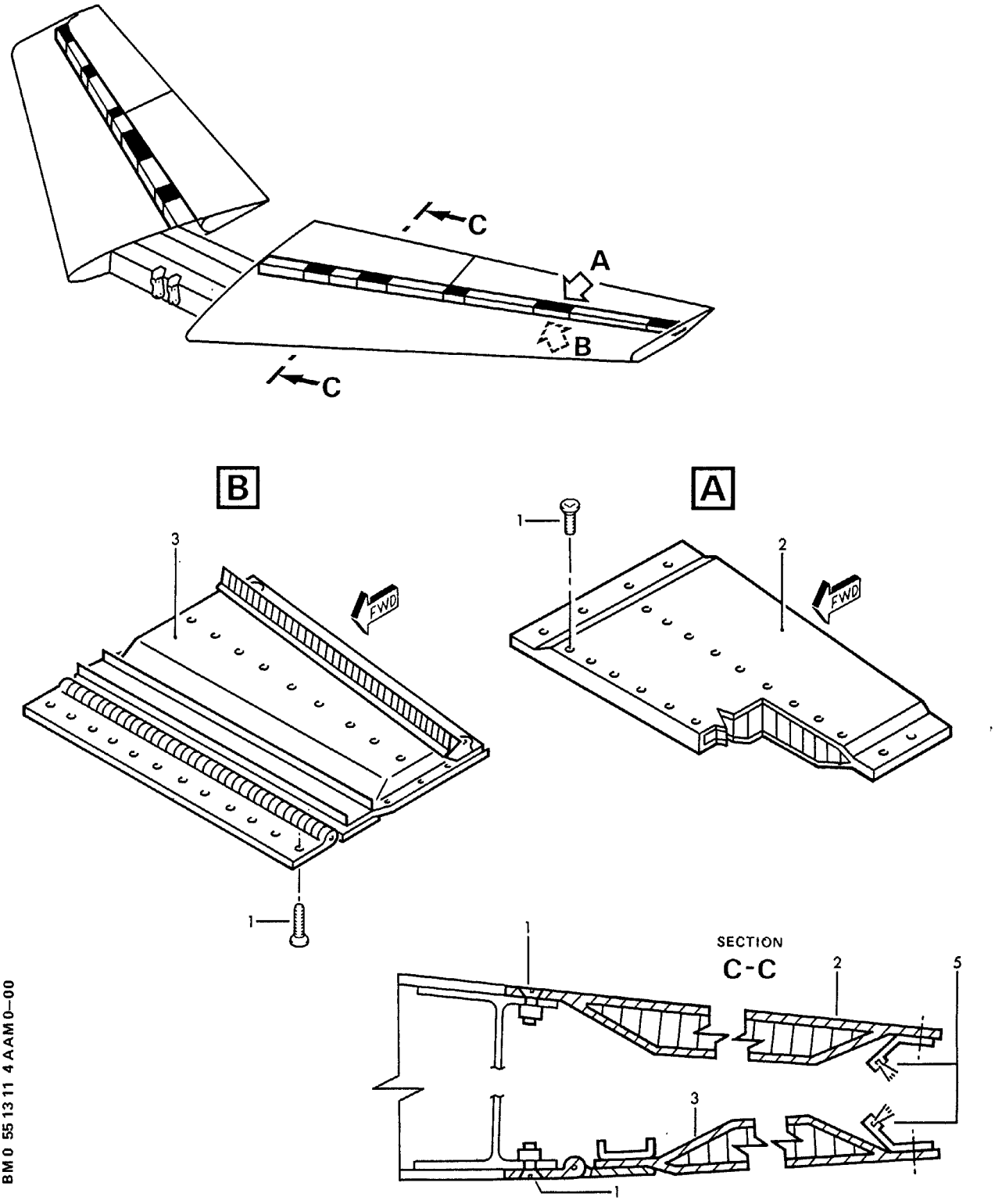
(4)Install electrical connector of Logo lights as necessary.

(5)If a new section (2, 3) has been installed, check that gaps between sections (2, 3) and spar box skin do not exceed 3.0 mm (0.118 in.).
(6)Seal gaps between sections (2, 3) and spar box skin with sealant (Mat. No. 09-019).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Install access panels (Ref. 55-13-13, P. Block 401).
(3)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).

(4)Remove safety clips and tags and close circuit breakers opened in Para. 2. A. (2).

(5)Remove access platform.



Horizontal Stabilizer Trailing Edge
Figure 401

TRAILING EDGE ACCESS PANELS - REMOVAL/INSTALLATION

WARNING: STANDARD WARNING MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZER (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, 5.5 and 6.5 m (18 ft. and 21 ft.)
B. 98A27307549000	Pin - Rigging, Elevator Control Bellcranks
C. Material No. 05-002	Special Materials (Ref. 20-31-00)
D. Material No. 05-013	Special Materials (Ref. 20-31-00)
E. Material No. 09-016	Sealants (Ref. 20-31-00)
F. Material No. 09-019	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures

2. Procedure

A. Job Set-Up
(1)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.

B. Removal (Ref. Fig. 401)
(1)Remove access panels (2) 334/344CT and (3) 334/344CB.
(a)Remove screws (1) and access panels (2, 3).
(b)Install rigging pin P/N 98A27307549000 on elevator control bellcrank at RIB9.
(2)For removal of upper access panels (2) 334/344AT, 334/344ET, 334/344GT, 334/344JT remove screws (1) and access panels (2).
(3)For removal of lower access panels (3) 334/344AB, 334/344EB, 334/344GB, 334/344JB remove screws (1) and access panels (3).

R NOTE: The removal of the lower access panels (3) 334/344AB can
R cause damage to the lower aprons.

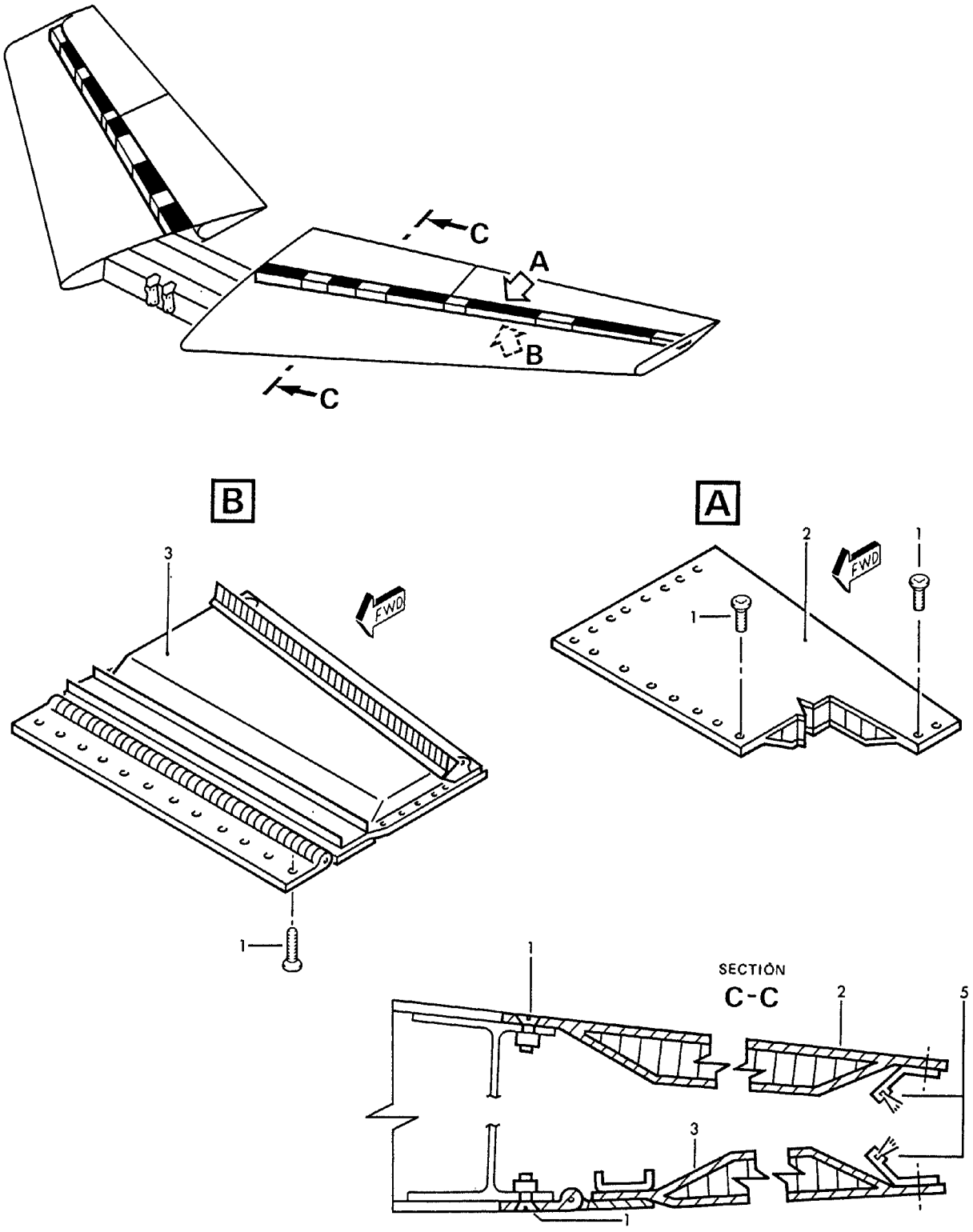
C. Preparation for Installation
(1)Check sealant (Mat. No. 09-016) on mating surface of spar box for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of access panels (2, 3) which contact spar box.
(3)Check anchor nuts on access panels (2, 3) for damage and renew as necessary.
(4)Check brushes (5) on access panels (2, 3) for good condition and replace as necessary.

D. Installation (Ref. Fig. 401)
(1)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (1).
(2)Install lower access panels (3) 334/344AB, 334/344EB, 334/344GB, 334/344JB and screws (1).

R NOTE: The isntall of the lower access panels (3) 334/344AB can
R cause damage to the lower aprons.

(3)Install upper access panels (2) 334/344AT, 334/344ET, 334/344GT, 334/344JT and screws (1).
(4)If a new access panel (2, 3) has been installed check that gaps between access panels (2, 3) and spar box skin do not exceed 3.0 mm (0.118 in.).
(5)Remove rigging pin P/N 98A27307549000 from elevator control bellcrank at RIB9 and install access panels (2) 334/344CT, (3) 334/344CB and screws (1).
(6)Fill gaps between panels (2), trailing edges and skin with sealant (Mat. No. 09-019)

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horizontal stabilizer to normal operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.



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Trailing Edge Access Panels
Figure 401

TRIMMABLE HORIZONTAL STABILIZER TIPS - DESCRIPTION AND OPERATION

1. General

A. The L and R horizontal stabilizer tips are of symmetrical design and form the tip aerodynamic fairings.

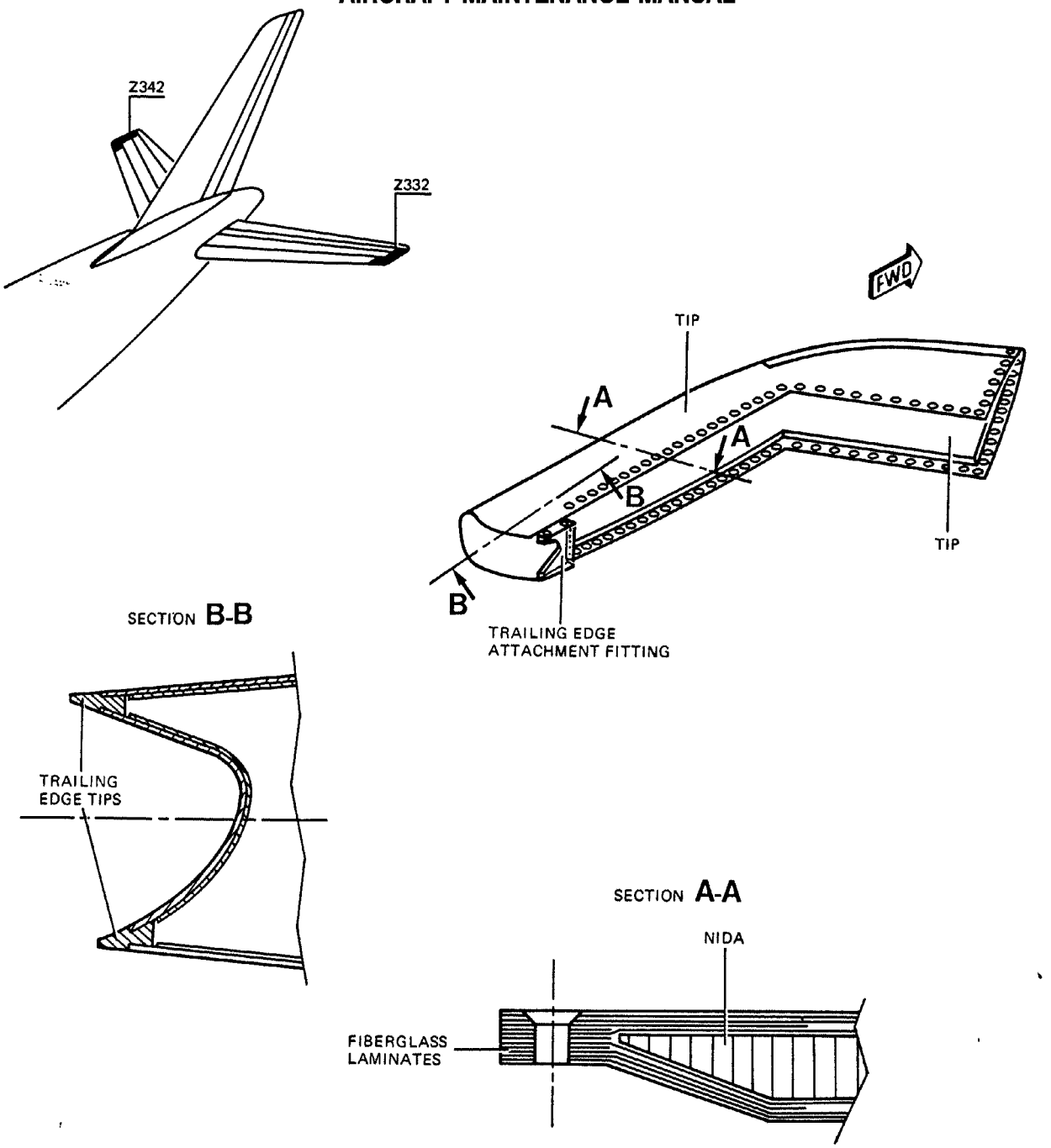
B. The L and R horizontal stabilizer tips are each composed of a bonded laminate component, two trailing tips, a fitting for attaching the tip to the horizontal stabilizer and a metal plate at the tip leading edge.

2. Description and Operation (Ref. Fig. 001, 002)

A. The bonded component of the horizontal stabilizer tip comprises a forward and aft portion, bonded together.
(1) The tip is formed from resin-bonded reinforced fiberglass laminates bonded around the inner and outer surfaces of a honeycomb core.
(2) Several layers of resin-bonded fiberglass laminate form the aft end of the tip, and the end is closed by a bonded-in trailing tip. The trailing tip is made from solid core filler material.
(3) Several layers of resin-bonded fiberglass laminate are bonded together to form the mounting edges of the tip.

B. The L and R horizontal stabilizer tips are secured to the outboard ends of the L and R horizontal stabilizer respectively by means of setscrews into the leading edge outboard section, front spar, end rib and trailing edge sections.
Where the tip is attached to the horizontal stabilizer trailing edge, an attachment fitting is screwed to the trailing edge mounting and to the upper and lower access panels of the trailing edge.

C. The horizontal stabilizer tips are sprayed with metallic aluminum paint to provide a lightning conductor and to disperse static electricity. Anti-corrosive treatment of the tips consists of a primer and finish coat of polyurethane paint.
To protect the horizontal stabilizer tip leading edge from erosion, a steel plate is attached to the tip leading edge by screws.



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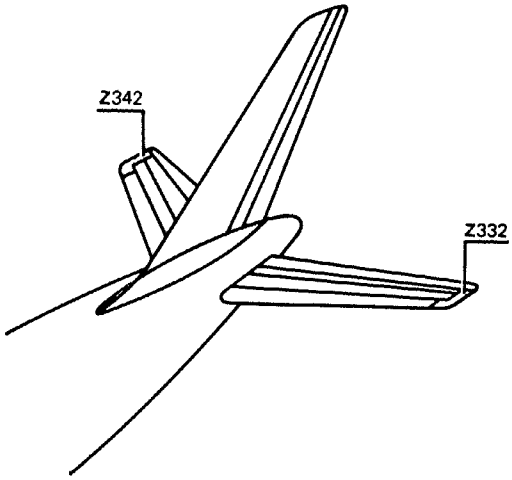
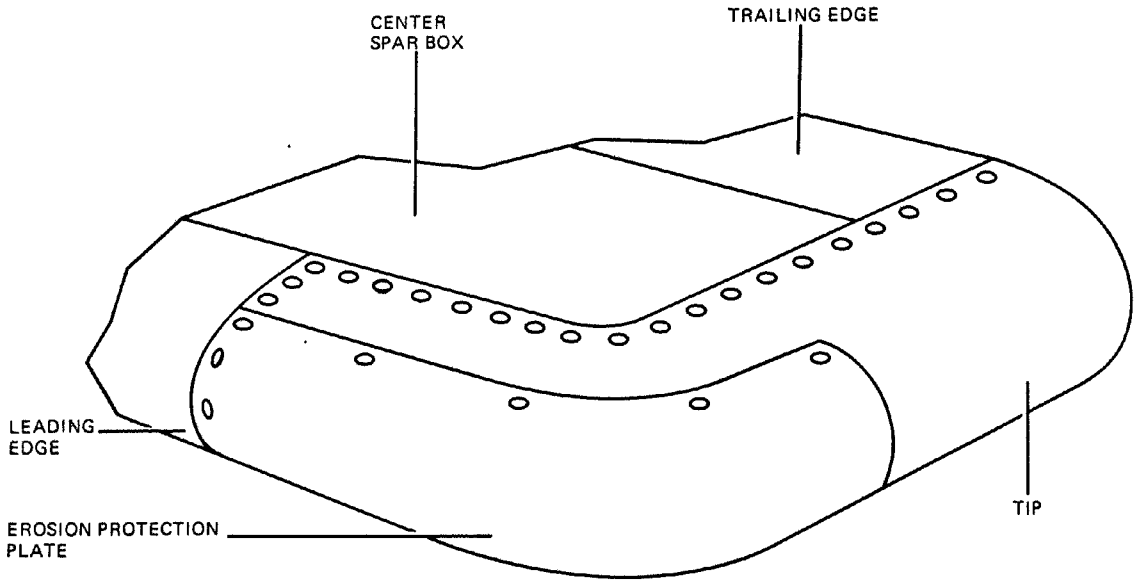
Horizontal Stabilizer Tip
Figure 001





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Horizontal Stabilizer Tip Erosion Protective Plate
Figure 002

HORIZONTAL STABILIZER TIP - REMOVAL/INSTALLATION

R **WARNING**: STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON/OR NEAR HORIZONTAL
R AND VERTICAL STABILIZERS (REF. AMM 55-00-00, P. BLOCK 301).

R **WARNING**: USE SOLVENTS/CLEANING AGENTS, SEALANTS AND OTHER SPECIAL MATERIALS ONLY
R WITH A GOOD FLOW OF AIR THROUGH THE WORK AREA.
THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND SKIN IRRITANTS.
OBEY THE MANUFACTURERS INSTRUCTIONS.
PUT ON PROTECTIVE CLOTHING.
DO NOT GET THEM IN YOUR MOUTH.
DO NOT SMOKE.
DO NOT BREATHE THE GAS.
GET MEDICAL HELP IF YOUR SKIN OR EYES BECOME IRRITATED.

1. Reasons for the Job

R A. Replacement of the horizontal stabilizer tip

R B. Replacement of the erosion protection plate

2. Equipment and Materials

	ITEM	DESIGNATION
	A.	Access Platform, 8 m (26 ft.)
	B. 98A27307549000	Pin - Rigging, Elevator Control Bellcranks
R	C.	Grip pins
R	D.	Straps
	E. Material No. 05-002	Special Materials (Ref. 20-31-00)
	F. Material No. 05-005	Special Materials (Ref. 20-31-00)
	G. Material No. 05-013A	Special Materials (Ref. 20-31-00)
	H. Material No. 08-090	Resine (Ref. 20-31-00)
	J. Material No. 09-005	Sealant (Ref. 20-31-00)
	K. Material No. 09-013	Sealant (Ref. 20-31-00)
	L. Material No. 09-019	Sealant (Ref. 20-31-00)
	M. Material No. 11-010	Special Material (Ref. 20-31-00)
	Referenced Procedures	
R	- 20-28-11, P. Block 001	Electrical Bonding - General
	- 51-76-10, P. Block 801	Repair of Sealing
	- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
	- 55-13-13, P. Block 401	Trailing Edge Access Panels

3. Procedure

NOTE: The preocedure only gives the left horizontal tip, the right side is similar.

A. Job Set-Up
(1)Make the horizontal stabilizer safe. (Ref. AMM 55-00-00, P. Block 301)
(2)Put the access platform(s).
(3)Remove the access panels 334JT/JB, 344JT/JB, 334CT, 344CT. (Ref. 55-13-13, P. Block 401).
(4)Install the rigging pin P/N 98A27307549000 on the elevator control bellcrank at RIB9.

B. Removal (Ref. Fig. 401)

CAUTION: DO NOT CAUSE DAMAGE TO THE SURFACES. THE COMPONENTS ARE MADE OF GLASS FIBER REINFORCED PLASTIC (GFRP).

(1)Remove the horizontal stabilizer tip (7) as follows:
(a)Remove the screws (4) and washers (5).
(b)Remove the screws, (11) and (12).
(c)Disconnect the bonding straps. (Ref. 20-28-11, P Block 001).
(d)Remove the tip (7).

NOTE: To replace the erosion protection plate, remove the horizontal stabilizer tip before.

(2)If necessary, replace the erosion protection plate (3) as follows:
(a)Remove the nuts (9), washers (8), screws (1) and washers (2).
(b)Remove the erosion protection plate (3) with a non-metallic scraper.

R C. Preparation for Installation (Ref. Fig. 401)

WARNING: OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE THE SPECIAL MATERIAL. THIS MATERIAL IS DANGEROUS.

CAUTION: DO NOT CAUSE DAMAGE TO THE SURFACES. THE COMPONENTS ARE MADE OF GLASS FIBER REINFORCED PLASTIC (GFRP).

R (1)For the horizontal stabilizer tip (7):
R (a)Remove the old sealant from the mating surfaces with a non-metallic scraper and cleaning agent (Mat. No. 11-010).
R (b)Clean the component interface and adjacent area with a lint-free cloth moist in cleaning agent (Mat. No. 11-010) until contamination is removed. Do not let cleaning agent dry on the surfaces.
R (c)Apply masking tape (Mat. No. 08-074) in the adjacent area to prevent unwanted material.
R (d)Check the sealant (Mat. No. 09-013) on the mating surfaces of the butt strap (6) and spar box for good condition, and apply again if necessary. (Ref. SRM 51-76-10, P. Block 801).
R (e)Apply on the mating surfaces and edges of the tip nose area:

R - Release agent (Mat. No. 05-013A).
R - Interfay sealant (Mat. No. 09-005).
R (f)Check the anchor nuts on the rib (10) for damage, and replace
R if necessary.

CAUTION: DO NOT CAUSE DAMAGE TO THE SURFACES. THE COMPONENTS ARE MADE OF GLASS FIBER REINFORCED PLASTIC (GFRP).

R (2)For the erosion protection plate (3), removed before:
R (a)Remove the old sealant from the mating surfaces with a
R non-metallic scraper and cleaning agent (Mat. No. 11-010).
R (b)Clean the component interface and adjacent area with a lint-free
R cloth moist in cleaning agent (Mat. No. 11-010) until
R contamination is removed. Do not let cleaning agent dry on the
R surfaces.
R (c)Prepare the mating surface of the horizontal stabilizer tip (7)
R with hot air and apply resine (Mat. No. 08-090).
R (d)Apply interfay sealant (Mat. No. 09-005) in the mating surface of
R the new erosion protection-plate (3).

D. Installation (Ref. Fig. 401)

WARNING: OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE THE SPECIAL MATERIAL. THIS MATERIAL IS DANGEROUS.

CAUTION: DO NOT CAUSE DAMAGE TO THE SURFACES. THE COMPONENTS ARE MADE OF GLASS FIBER REINFORCED PLASTIC (GFRP).

(1)Install the horizontal stabilizer tip (7) as follows:
(a)Connect the bonding straps. (Ref. 20-28-11, P Block 001).
(b)Apply corrosion-preventive paste (Mat. No. 05-002) to the screws, (4), (11) and (12).
(c)Put the horizontal stabilizer tip (7) and install the washers (5) and screws (4).
(d)Install the screws, (11) and (12).
(e)Apply corrosion protective compound (Mat. No. 05-005) to all screw heads.
(f)If a new horizontal stabilizer tip (7) has been installed, check that gaps between horizontal stabilizer tip (7) and leading edge, horizontal stabilizer tip (7) and spar box skin do not exceed 3.0 mm (0.118 in.).
(g)Seal gaps between the horizontal stabilizer tip (7) and leading edge, horizontal stabilizer tip (7) and spar box, and horizontal stabilizer tip (7) and trailing edge with sealant (Mat. No. 09-019).

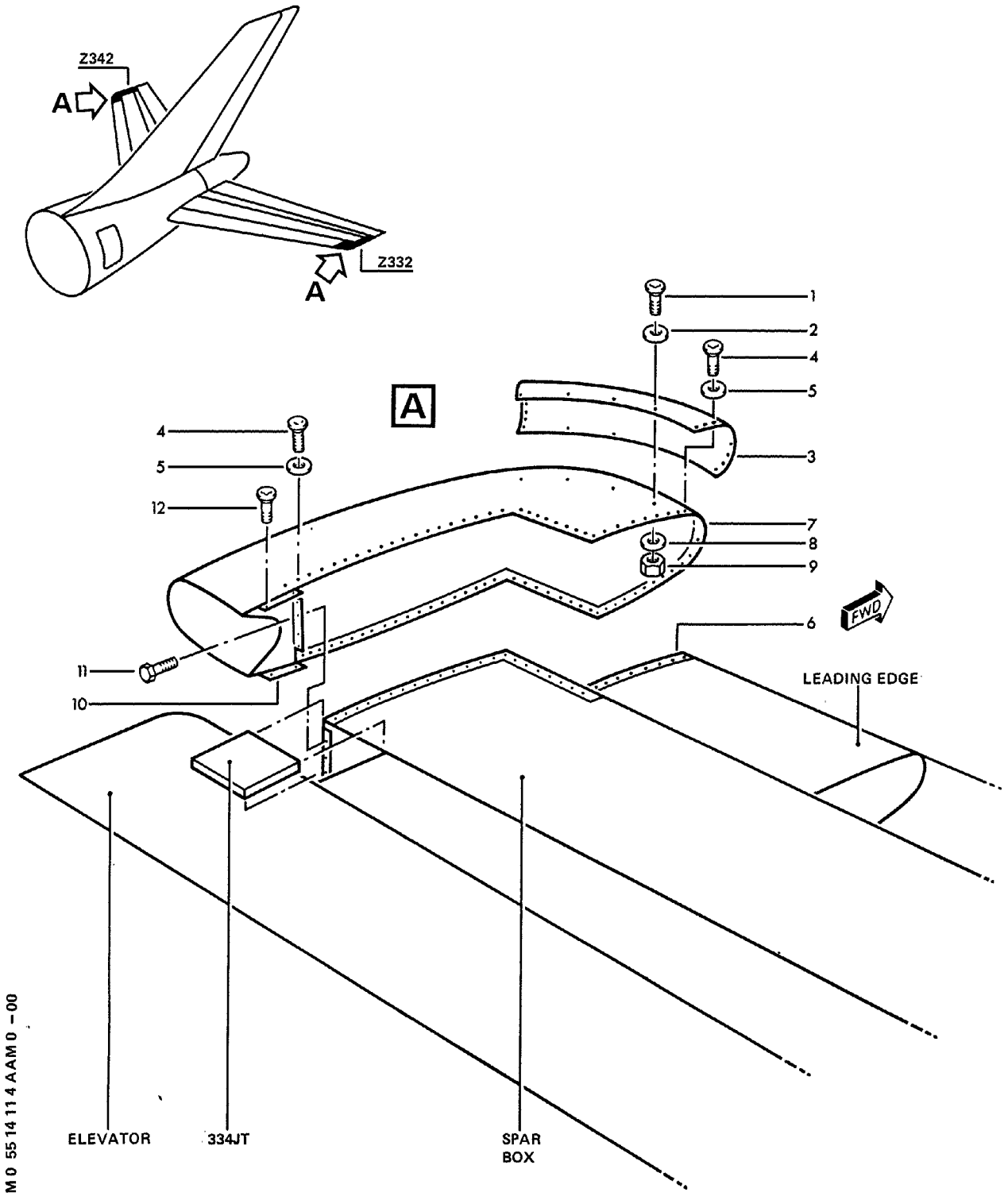
NOTE: To replace the erosion protection plate, remove the horizontal stabilizer tip before.

(2)Install the erosion protection plate (3), removed before as follows:
(a)Hold the erosion protection plate (3) with grip pins.

(b)Put straps around the erosion protection plate (3) and tighten them carefully until install the erosion protection plate (3) on the horizontal stabilizer tip (7).
(c)Let the sealant dry at room temperature.
(d)Remove the unwanted sealant and the grip pins. Clean the holes.
(c)Wet install the washers (2), screws (1), washers (8) and nuts (9).
(d)Apply corrosion protective compound (Mat. No. 05-005) to all screw heads.
R (e)Install the horizontal stabilizer tip as the previous step D.(1).

E. Test
(1)Check that the maximun resistance value between the erosion protection plate and the adjacent aircraft structure is 10 milliohms. (Ref. 20-28-11, P. Block 001).

R F. Close-Up
(1)Make sure that the work area is clean and clear of tools and other items.
(2)Remove the rigging pin P/N 98A27307549000 from elevator control bellcrank at RIB9.
(3)Install the access panels 334JT/JB, 344JT/JB, 334CT and 344CT. (Ref. 55-13-13, P. Block 401).
(4)Return the horizontal stabilizer to the serviceable condition. (Ref. 55-00-00, P. Block 301).
(5)Remove access platform(s).



Horizontal Stabilizer Tip
Figure 401

TRIMMABLE HORIZONTAL STABILIZER APRON
DESCRIPTION AND OPERATION

1. General

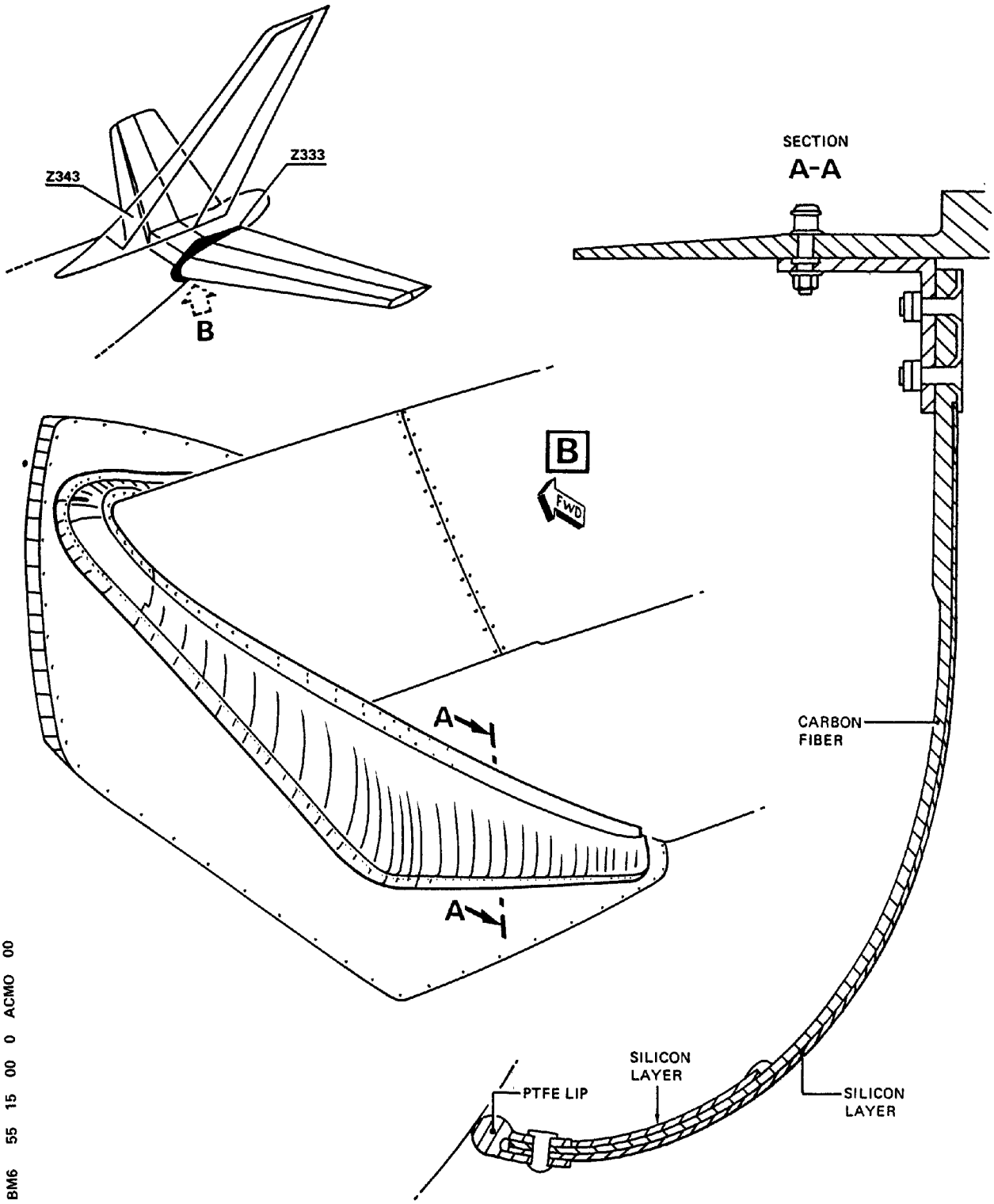
A. The horizontal stabilizer aprons form an aerodynamic seal between the horizontal stabilizer and the fuselage. Each apron comprises three main parts; the upper, lower and forward sections. Each section is attached to the apron support fittings by screws.

2. Description (Ref. Fig. 001)

A. The aprons are constructed from carbon-fiber reinforced plastic (CFRP) covered with layers of silicone matting. To minimize friction between the aprons and the fuselage, the contact edge of each apron is edged with a segmented lip of polytetrafluorethylene (PTFE) which is attached to the apron by rivets.

B. The aprons are flexible and sprung against the fuselage so that during movement of the horizontal stabilizer, the aprons maintain contact with the fuselage to ensure smooth airflow.

C. The apron support fittings are made of aluminum alloy and are removable in the area of the spar box.



Trimmable Horizontal Stabilizer Aprons
Figure 001

TRIMMABLE HORIZONTAL STABILIZER APRON - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

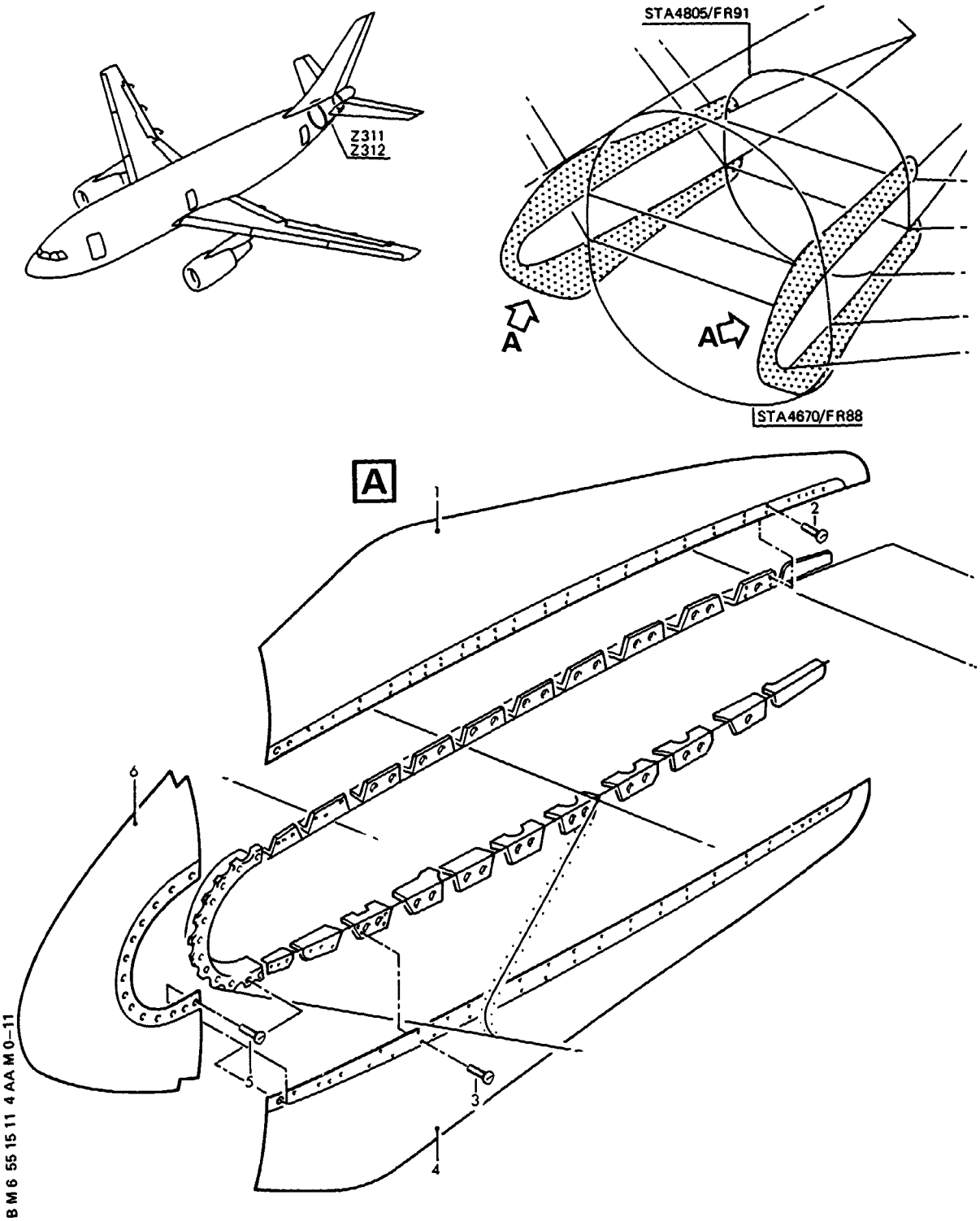
ITEM	DESIGNATION
A.	Access Platform, 8 m (26 ft. 3 in.)
B.	Nonmetallic Scraper
C. Material No. 09-016	Sealants (Ref. 20-31-00)
D. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.

B. Removal (Ref. Fig. 401)
WARNING : APRONS ARE STRESSED, SCREWS ARE UNDER TENSION. REMOVE CAREFULLY.
(1)Remove screws (5) and forward apron (6).
(2)Remove upper apron (1) as follows:
(a)Position horizontal stabilizer at +3° (Ref. para 2.D.))
(b)Where screws are installed in pairs, remove lower row of screws (2).
(c)Remove remaining screws (2) and upper apron (1).
(3)Remove lower apron (4) as follows:
(a)Position horizontal stabilizer at -15° (Ref. para. 2.D.)
(b)Where screws are installed in pairs, remove upper row of screws (3).
(c)Remove remaining screws (3) and lower apron (4).

C. Preparation for Installation
(1)Remove old sealant from inner edges of apron sections and from contact surface of horizontal stabilizer using nonmetallic scraper and cleaning agent (Mat. No. 11-004).



Horizontal Stabilizer Aprons
Figure 401

D. Operation of Horizontal Stabilizer
(1)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
WARNING : OBSERVE STANDARD WARNINGS BEFORE PRESSURIZING HYDRAULIC SYSTEMS (REF. 55-00-00, P. BLOCK 301).
(2)Pressurize hydraulic systems (Ref. 29-10-00, P. Block 301).
(3)Make certain that travel range of horizontal stabilizer is free from obstruction.
(4)Operate pitch-trim handwheel in flight compartment to drive horizontal stabilizer to required position.
(5)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

E. Installation (Ref. Fig. 401)
(1)Install lower apron as follows:
(a)Position horizontal stabilizer at -15° (Ref. para. 2.D.).
(b)Position lower apron (4) and insert all screws (3) sufficient only to start threads.
(c)Tighten screws (3) in small increments beginning at the rear and working forwards. Repeat as required until apron sits firmly against attach fittings on horizontal stabilizer.
(2)Install upper apron as follows:
(a)Position horizontal stabilizer at +3° (Ref. para. 2.D.).
(b)Position upper apron (1) and insert all screws (2) sufficient only to start threads.
(c)Tighten screws (2) in small increments beginning at the rear and working forwards. Repeat as required until apron sits firmly against attach fittings on horizontal stabilizer.
(3)Install forward apron as follows:
(a)Position forward apron (6) and insert screw (5) in front hole, then insert screws (5) in the two rear holes (upper and lower). Turn screws sufficiently only to start threads.
(b)Insert remaining screws (5). Turn screws sufficient only to start threads.
(c)Tighten screws in small increments, beginning at forward screw and working rearwards, alternating upper and lower screws, until apron sits firmly against attach fittings on horizontal stabilizer.
(4)Fill gap between aprons and horizontal stabilizer with sealant (Mat. No. 09-016).

F. Test
(1)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
(2)Operate horizontal stabilizer through complete range and check that aprons follow contour of fuselage smoothly and without obstruction.
(3)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

G. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.

HORIZONTAL STABILIZER APRON SUPPORT FITTINGS REMOVAL/INSTALLATION

WARNING: STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Nonmetallic Scraper
B. Material No. 05-002	Special Materials (Ref. 20-31-00)
C. Material No. 09-005	Sealants (Ref. 20-31-00)
D. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
- 55-15-11, P. Block 401	Horizontal Stabilizer Apron

2. Procedure

A. Job Set-Up
(1) Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(2) Remove upper and lower horizontal stabilizer aprons (Ref. 55-15-11, P. Block 401).

B. Removal (Ref. Fig. 401)

NOTE : Only apron support fittings at upper and lower spar box skin LH and RH are removable.

(1)Remove nuts (1).
(2)Remove support fittings (2).

C. Preparation for Installation (Ref. Fig. 401)

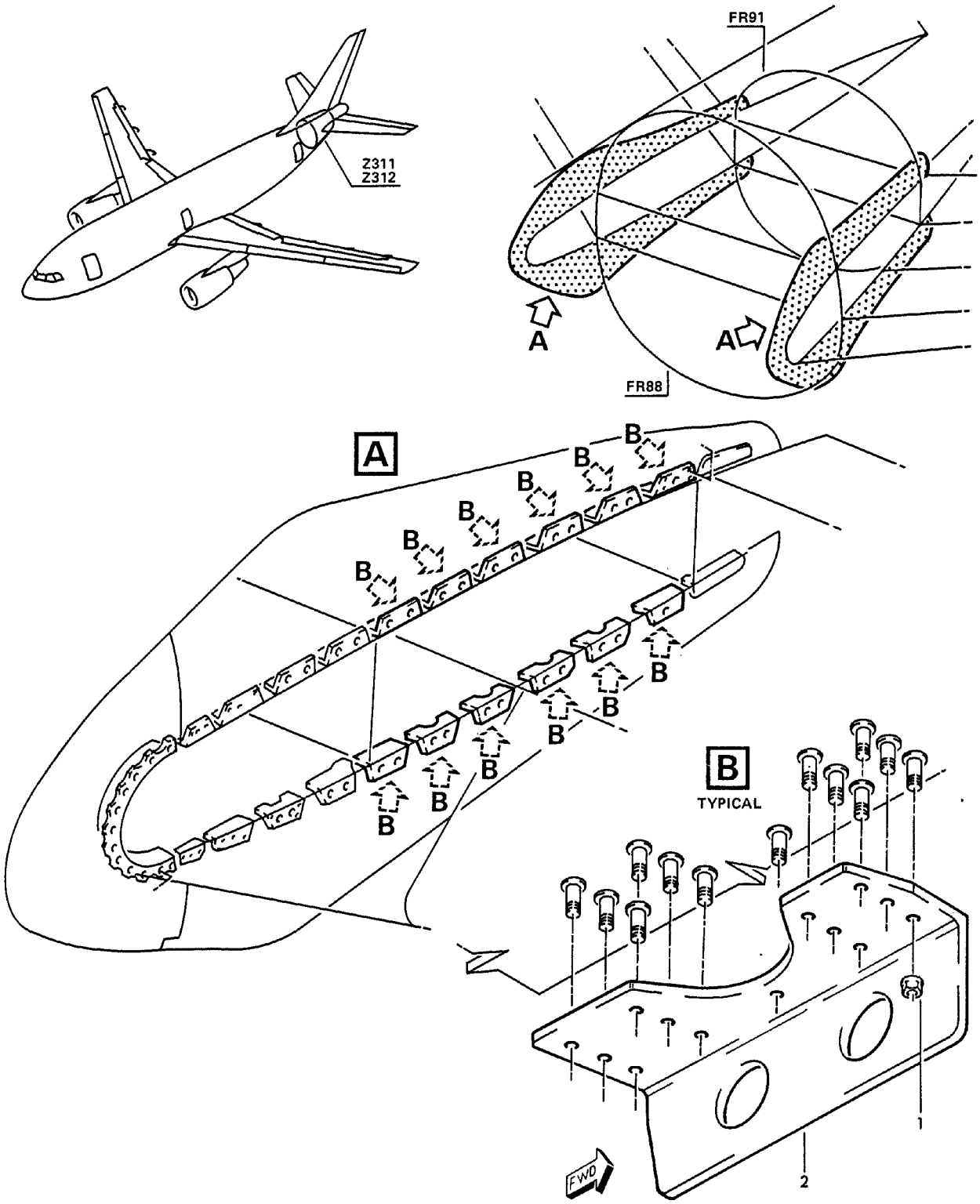
(1)Remove old sealant from contact surface of horizontal stabilizer spar
R box with nonmetallic scraper and cleaning agent (Mat. No. 11-004).
(2)Apply sealant (Mat. No. 09-005) to apron support fittings (2).

D. Installation (Ref. Fig. 401)

R (1)Put the apron support fittings (2) in its correct position.
(2)Apply corrosion-preventive paste (Mat. No. 05-002) to threads of stud pins.
(3)Install nuts (1).
(4)Remove excess sealant as required.

E. Close-Up

R (1)Make sure that the work area is clean and clear of tools and other
R items of equipment.
(2)Install upper and lower horizontal stabilizer aprons (Ref. 55-15-11, P. Block 401).
R (3)Put the horizontal stabilizer back to normal operation condition (Ref. 55-00-00, P. Block 301).



Apron Support Fittings
Figure 401

1. General (Ref. Fig. 001)

A. Various fittings are mounted on the spar box of the horizontal stabilizer for attachment of the horizontal stabilizer to the fuselage, THS actuator and elevators. These are :
(1) Fittings for the attachment of the horizontal stabilizer center spar box to the pivot position in fuselage tail section 19. (Ref. 55-16-37).
(2) Fittings for the attachment of the horizontal stabilizer center spar box to the THS hydromechanical actuator mounting gimbal. (Ref. 55-16-36).
(3) Fittings for the attachment of the elevator hinge arms and actuators to the L and R horizontal stabilizer spar boxes. (Ref. 55-16-36).
(4) Elevator hinge arms for attachment of the elevators to L and R horizontal stabilizer spar boxes. (Ref. 55-16-43).

B. The horizontal stabilizer is attached to fuselage tail section 19 at two pivot positions, one on each side of the fuselage, at FR91. To achieve this, the following fittings are installed on the horizontal stabilizer rear spar :
(1) At the L and R outboard end of the center spar box, at STA 93/RIB3, there are attach fittings which carry the support fittings.
(2) Two support fittings with fitted bearings to carry the pivot eye bolts.
(3) On the L and R horizontal stabilizer rear spar, at STA109/RIB4, there are attach fittings to retain the pivot eye bolts in the correct alignment axis.

C. The angle of attack of the horizontal stabilizer is adjustable via the THS trim system, and fittings are provided on the forward spar of the center spar box for attachment of the horizontal stabilizer to the mounting gimbal of the THS hydromechanical actuator. The fittings are as follows :
(1) Two attach fittings, one each side of the aircraft centerline, carry the detachable THS actuator hinge arms.
(2) Two THS actuator hinge arms, the L arm having a fixed bearing and the R arm having a floating bearing
(3) An angle bracket is installed at the bottom center of the forward spar for attachment of the strut fixture during removal of the THS actuator mechanical connections.
(4) An end-of-travel stop is installed at the bottom of the forward spar, immediately outboard of L RIB1, for actuation of the THS limit switch.

D. For the attachment of the L and R elevators, the following fittings are installed on each of the L and R horizontal stabilizer spar box rear spar :
(1) Seven attach fittings, to carry the elevator hinge arms and actuators, at STA159/RIB5, STA259/RIB9, STA291/RIB10, STA323/RIB11,

STA473/RIB14, STA623/RIB17 and STA823/RIB21.
(2)Seven elevator hinge arms, mounted on the attach fittings (Ref. para. D(1)), to carry each elevator.
(3)A diagonal strut on both L and R rear spars.

E. Four hoisting points are provided on the upper surface of each of the L and R horizontal stabilizer (Ref. 55-11-00).

F. Two jacking points are provided on the lower surface of each of the L and R horizontal stabilizer (Ref. 55-11-00).

2. Description and Operation

A. Horizontal Stabilizer Support (Ref. Fig. 002)
(1)The attach fittings, which carry the support fittings for the installation of the horizontal stabilizer to its pivot points in fuselage tail section 19, are situated at the upper and lower rear flanges of L and R RIB3.
(a)The attach fittings are riveted through the spar box skin to RIB3 flanges.
(b)Each attach fitting consists of two machined aluminum alloy parts bonded together.
(c)At the end of each attach fitting a steel bush is fitted through which passes the connecting bolt for the support fitting.
(2)One support fitting is installed at L and R RIB3 by means of bolts through the aft projections of the attach fittings and the support fitting fork ends.
(a)Each support fitting consists of two machined aluminum alloy parts bonded together.
(b)Each support fitting has a fork end at its upper and lower extremities, the bores of which are fitted with steel bushes and inner nickel-bronze flanged bushes.
1 The support fitting connecting bolts pass through the bushes and the attach fitting, and are retained by means of cotter pins passing over the bolt heads and through the support fitting lugs.
2 Each connecting bolt is secured by a castellated nut and cotter pin.
(c)The horizontal stabilizer is installed on the pivot axis line by means of two pivot eye bolts, these bolts being retained by bearing assemblies in each support fitting.
1 The main bore of each support fitting has a press-fitted chrome-nickel steel bush into which is press-fitted a steel flanged bearing retainer with the flange on the inboard side.
2 A self-aligning bearing is fitted in each bearing retainer and is retained by a threaded ring nut secured by a lockplate.
3 The bearing housing is retained in the support fitting by a slotted ring nut secured by a lock washer.
4 The self-aligning bearing is sealed on both sides by a plastic sealing ring.
(3)An attach fitting is installed on the L and R horizontal stabilizer rear spar at RIB4 position, to provide an alignment fitting for the pivot eye bolts.

(a)The attach fittings are machined in one piece from aluminum alloy, and are installed by rivets and hex.hd. screws.
(b)The fork end bores are fitted with bushes bonded in with Loctite AV, into which flanged bushes are inserted.
(c)The head of each pivot eye bolt is retained in the fork end by a connecting bolt which is secured by a lock nut and cotter pin (Ref. 53-46-00).

B. THS Actuator Attachment (Ref. Fig. 003)
(1)Two attach fittings are located on the center spar box forward spar on each side of the aircraft centerline, to provide installation for the trim actuator hinge arms.
(a)The attach fittings are machined from an aluminum alloy forging, with riveted flange plates fitted at the upper and lower ends.
(b)The attach fittings are riveted to the forward spar and to the upper and lower flanges of L and R RIB1.
(c)The three front webs of the attach fittings are bored top and bottom for attachment of the trim actuator hinge arms, the bores are fitted with steel bushes.
(d)Flanged bushes are press-fitted into the steel bushes.
(2)Two THS actuator hinge arms are installed on the attach fittings at L and R RIB1 on the center spar box forward spar.
(a)Each hinge arm is formed from two machined aluminum alloy forgings, bonded and bolted together.
(b)Each hinge arm is vee-shaped, the open ends of the vee being fork ends for attachment to the attach fittings.
(c)The bores of the fork ends are fitted with bushes.
(d)The fork ends are installed on the attach fittings by means of a sleeve and bolt passing through the fork end and the three front webs of the attach fittings.
1 A sleeve, threaded at one end, passes through the bushes in the fork end and attach fitting webs, and is secured by a slotted ring nut and lock washer.
2 A hex head bolt passes through the sleeve, and is secured by a shaft nut and lock washer.
3 The sleeve and bolt are safetied by a cotter pin passing through the hex. head of the bolt and the sleeve.
(e)For attachment of the hinge arms to the mounting gimbal of the THS hydromechanical actuator, each hinge arm is fitted with a bearing assembly at its forward end.
1 The L hinge arm is fitted with a fixed bearing assembly comprising a chrome-nickel-molybdenum flanged bush internally threaded at the opposite end to the flange, and secured by means of a flanged spacer washer and castellated locking ring.
2 The R hinge arm is fitted with a floating bearing assembly.
(f)Adjustment of the gap between the front ends of the two hinge arms is by means of an adjustable spacer rod bolted to, and between, the forward tips of the hinge arms.

C. Elevator Attachment
(1)Attach fittings for elevator hinge arms and actuators

(Ref. Fig. 004, 005)

(a)Attach fittings for the elevator hinge arms are located on the horizontal stabilizer spar box rear spar at the following positions on both L and R horizontal stabilizers :
Hinge 1 : STA 159/RIB5
Hinge 2 : STA 259/RIB9
Hinge 3 : STA 291/RIB10
Hinge 4 : STA 323/RIB11
Hinge 5 : STA 473/RIB14
Hinge 6 : STA 623/RIB17
Hinge 7 : STA 823/RIB21

(b)All attach fittings are machined from wrought aluminum alloy, and are riveted by the front webs to the respective rib and by the flanges to the rear spar.

(c)Attach fittings at hinges 1 and 7 are identical in design and consist of three machined parts bonded and riveted together.

1 The component parts are a center fork piece, and L and R fork halves, on assembly, slots between each part are filled with Material No.365 or Material No.358.

2 The rear forks are bored and fitted with nickel-chrome steel bushes to receive the hinge arm connecting bolts.

(d)Attach fittings at hinges 5 and 6 are identical in design, and are machined in one piece.

1 The rear forks are bored and fitted with nickel-chrome steel bushes to receive the hinge arm connecting bolts.

(e)Attach fittings at hinges 2, 3 and 4 are identical in design.

1 The rear forks are bored and fitted with nickel-chrome steel bushes, the upper and center forks to receive the hinge arm connecting bolts and the lower, fork to receive the actuator connecting bolt.

2 At hinge 4 on the L horizontal stabilizer and hinge 2 on the R horizontal stabilizer, an additional fitting is attached by screws to the upper fork of the attach fittings. This fitting has an integral self-aligning bearing to receive the diagonal strut connecting bolt.

(2)Elevator Hinge Arms (Ref. Fig. 006, 007)

(a)One elevator hinge arm is installed on each of the attach fittings (see para. 2.C.(1)(a)).

(b)The elevator hinge arms are machined from aluminum alloy. Hinge arms 2, 3, 4, 5 and 6 are machined from one piece, and hinge arms 1 and 7 consist of two symmetrical halves bonded together.

(c)All elevator hinge arms are vee-shaped, having an upper and lower arm, with the apex at the aft end. Both upper and lower arms are of I-cross section.

(d)Each hinge arm has three bores, one at the forward end of each arm for connection to the attach fittings, and one at the hinge arm apex for connection to the elevator.

(e)Each bore is fitted with a self-aligning bearing.

1 At hinge arms 2, 3, 4, 5 and 6, connection of the hinge arm to the attach fitting and to the elevator is achieved by means of hex. head bolts, flanged bushes, washers, slotted ring nuts, lock washers,

and cotter pins.

2 At hinge arms 1 and 7, connection of the hinge arm to the attach fitting and to the elevator is achieved by means of a sleeve, threaded at one end and secured by a slotted ring nut and secured with a hex. head bolt passing through the sleeve and secured by a nut and lock washer. The sleeve and bolt are safetied by a cotter pin passing the hex. head of the bolt and the sleeve.

(f) Hinge arm 4 on both L and R horizontal stabilizers has a built-in stop extension on the underside of the lower arm to provide an end-of-travel stop for elevator movement.

(3) Elevator Diagonal Strut (Ref. Fig. 008)

(a) A diagonal strut is fitted on both L and R horizontal stabilizers to provide rigidity along the elevator hinge line.

(b) On the L horizontal stabilizer, the diagonal strut is fitted between attach fitting 4 on the stabilizer and hinge arm fitting 3 on the elevator.

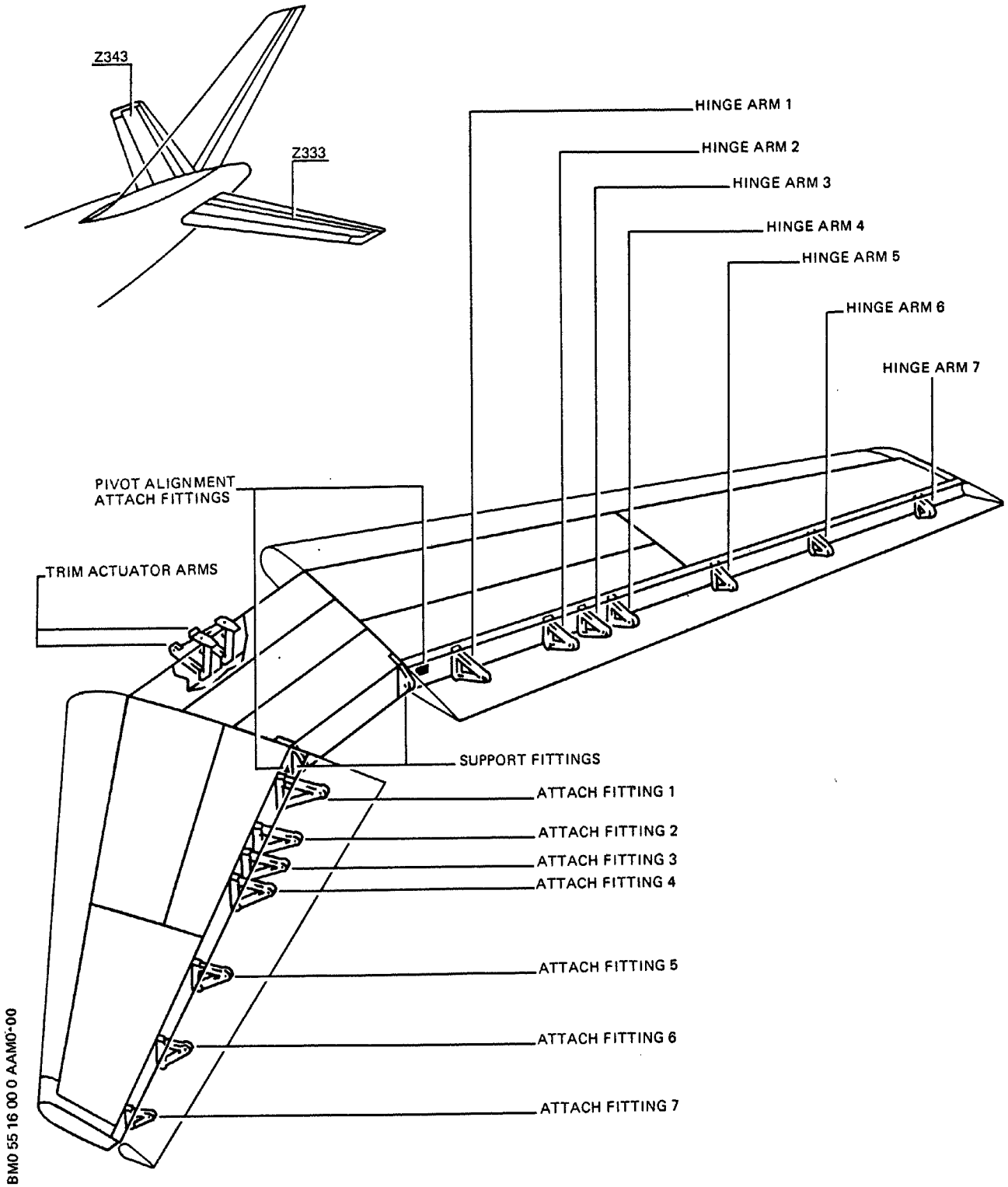
(c) On the R horizontal stabilizer, the diagonal strut is fitted between attach fitting 2 on the stabilizer and hinge arm fitting 3 on the elevator.

(d) Each diagonal strut consists of a center tubular section, with a fork end fitting screwed into one end and an eye end fitting screwed into the other end. The end fittings are secured into the center section by lock nuts and lock washers.

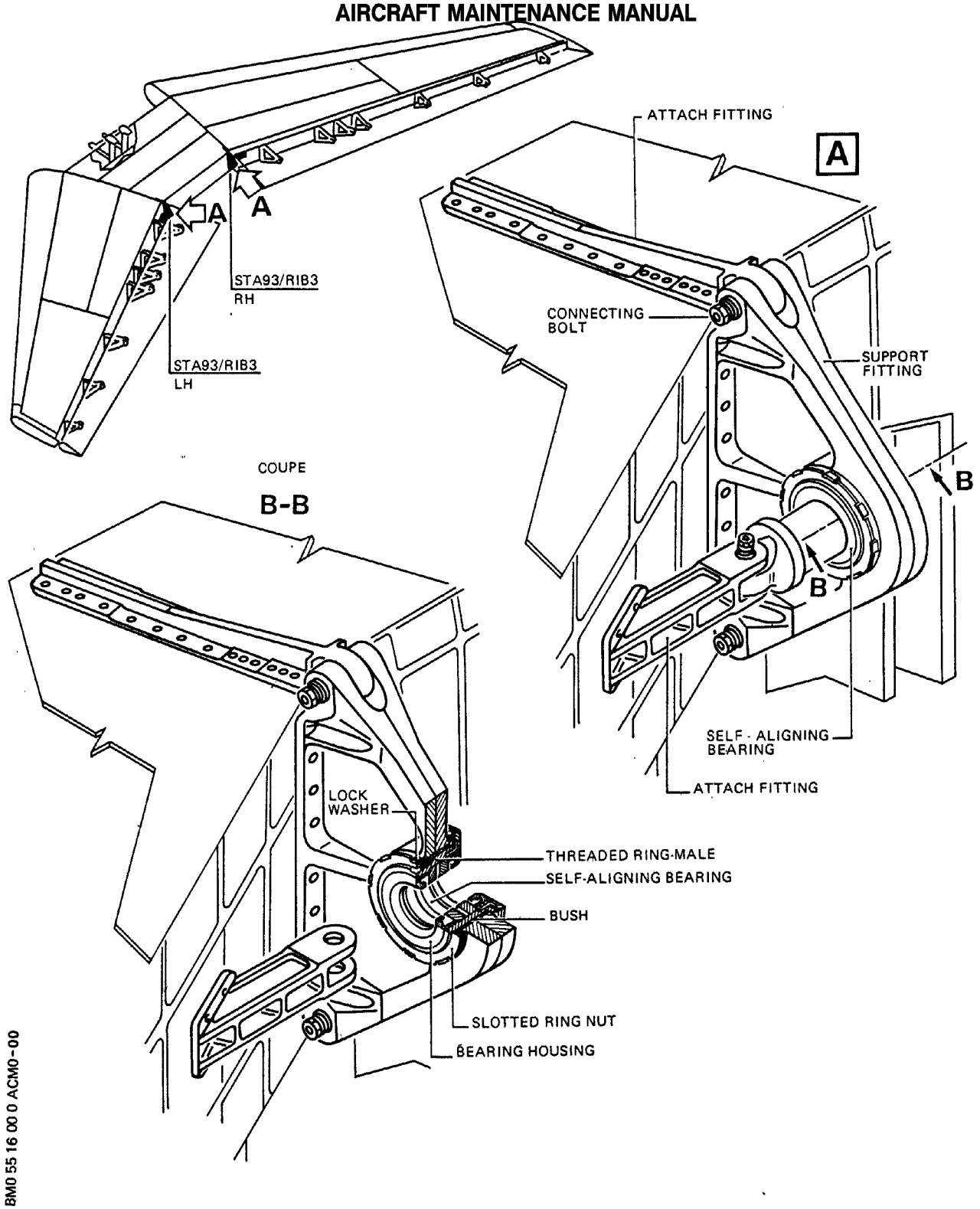
(e) The fork end fitting is fitted with a bush and flanged bush to receive the connecting bolt to the attach fitting (see para.2.C.(1)(e)(2).

(f) The eye end fitting is fitted with a self-aligning bearing secured by a threaded ring and cotter pin.

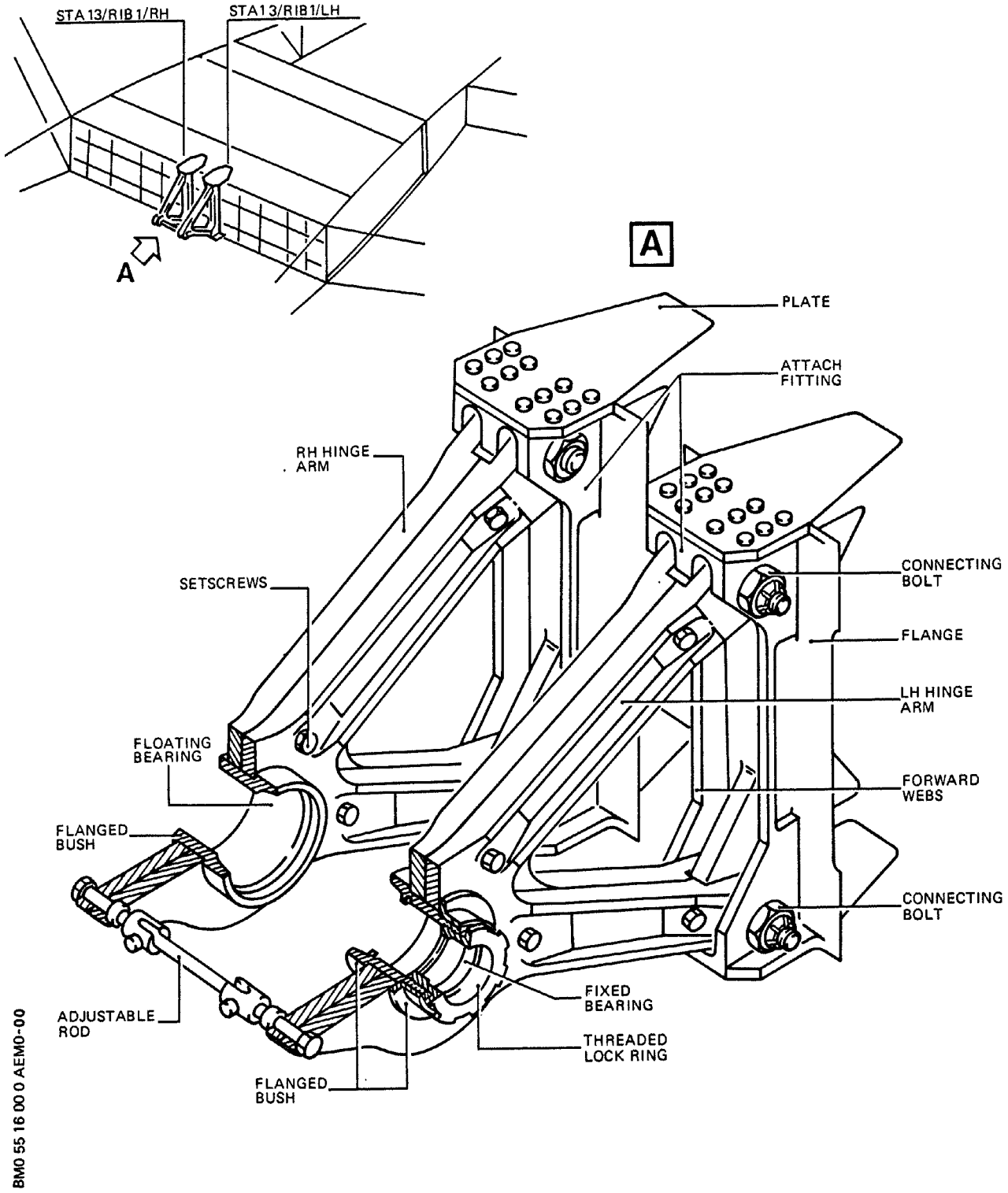
(g) The eye end fitting is installed on the elevator attach fitting at hinge 3, and is secured by the same connecting bolt as that securing the elevator hinge arm (Ref. 55-52-00).



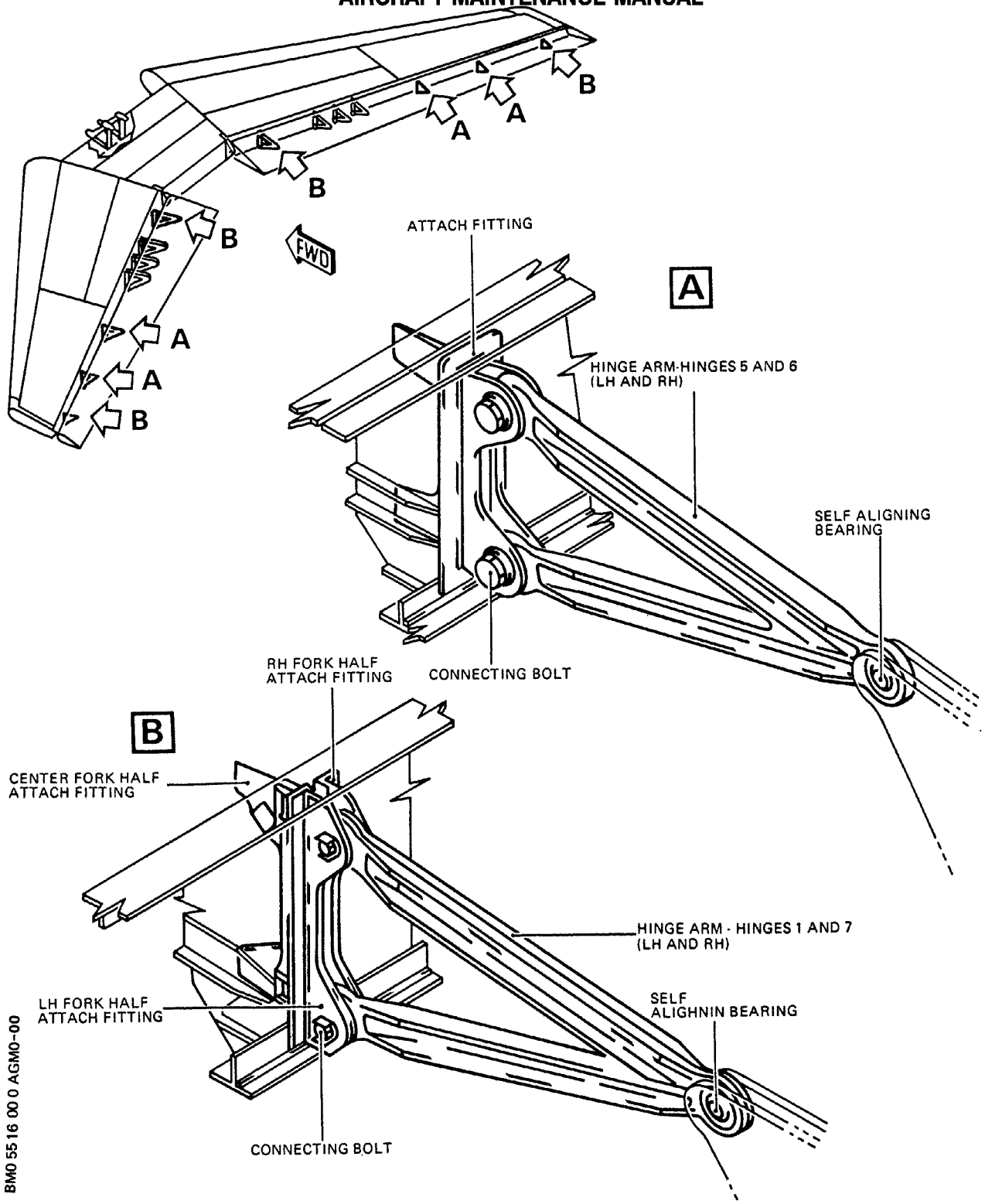
Attach Fittings - Horizontal Stabilizer
Figure 001



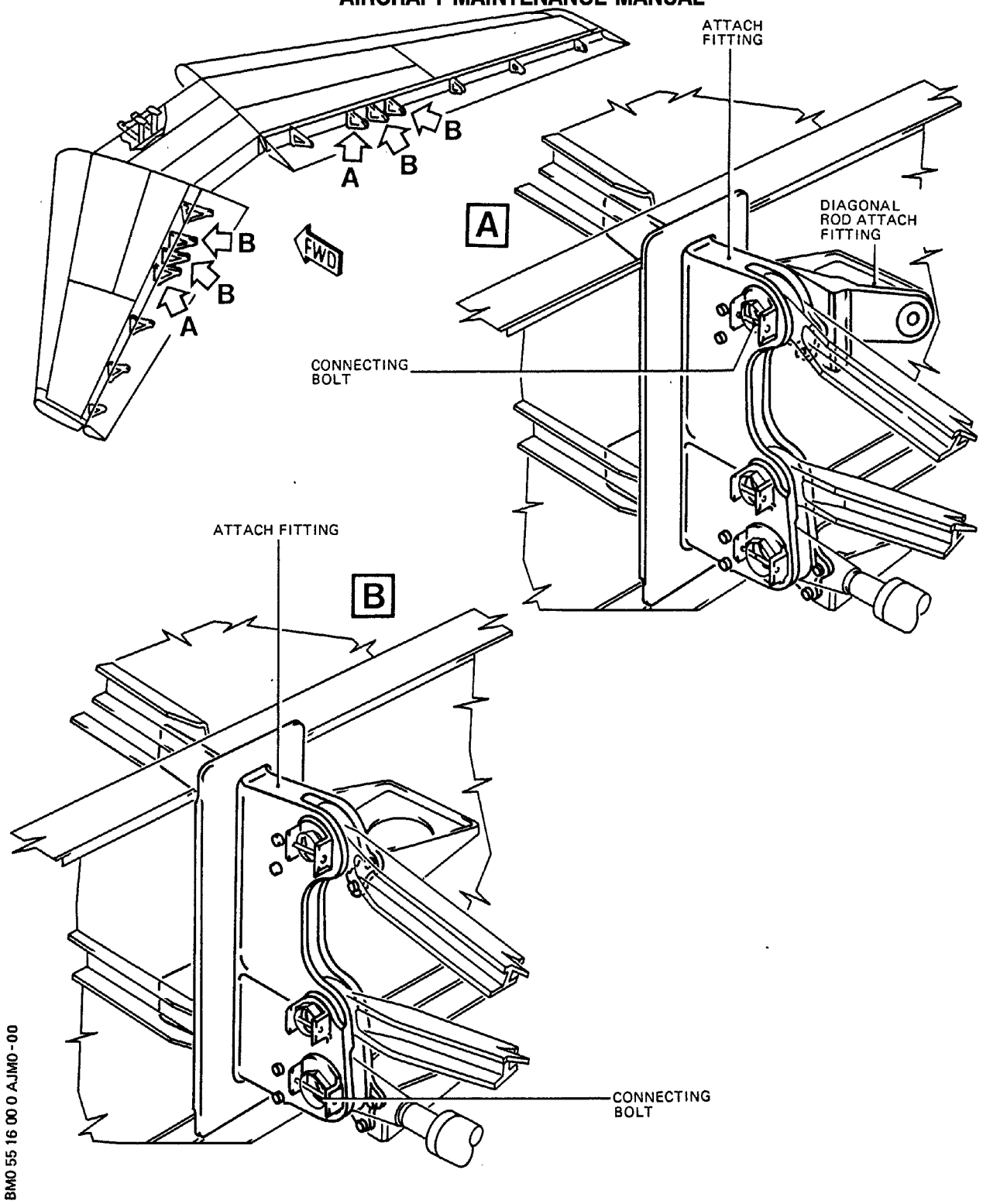
Horizontal Stabilizer Support Attach Fittings
Figure 002



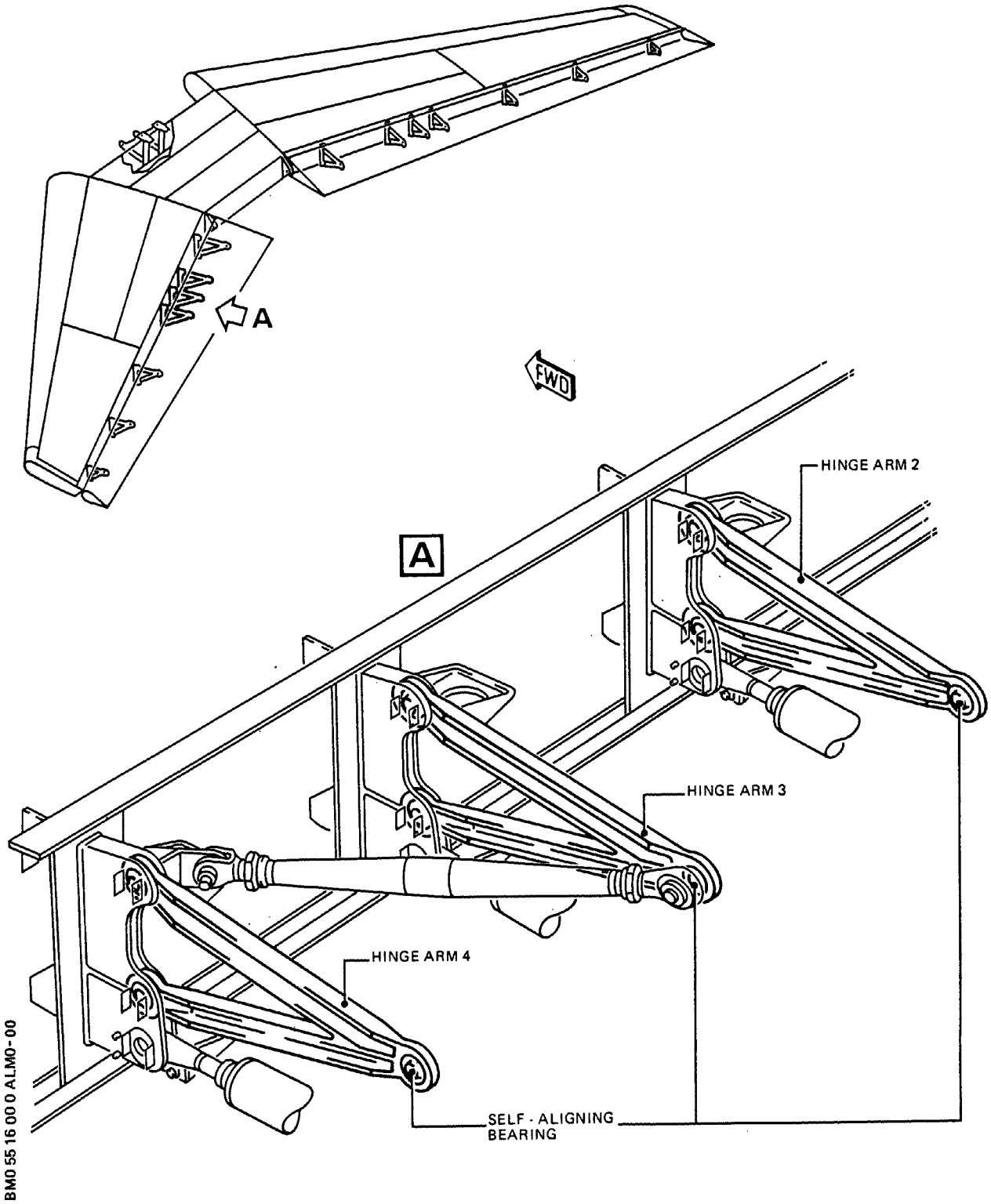
THS Actuator Hinge Arms
Figure 003



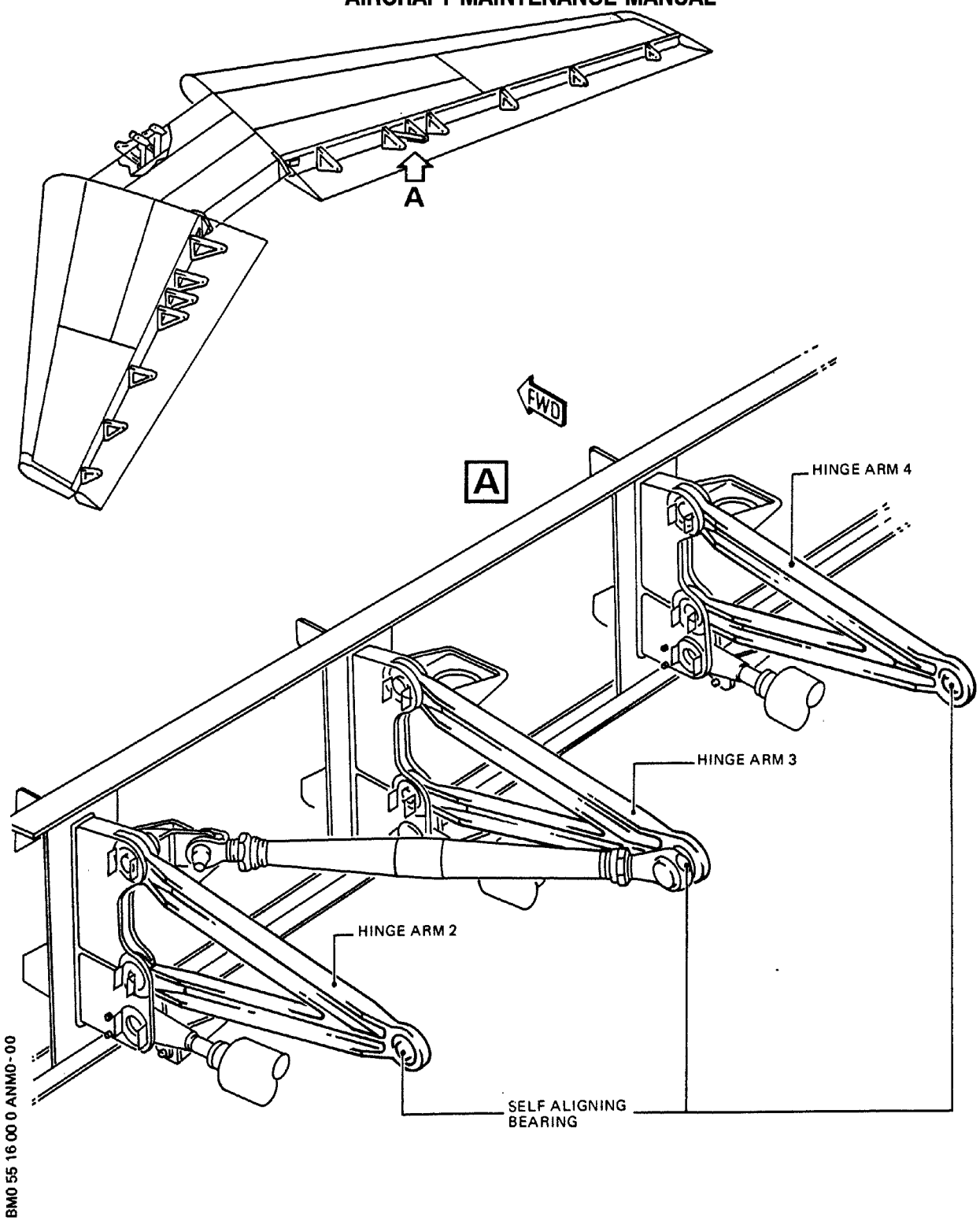
Attach Fitting - Hinges 1, 5, 6 and 7
Figure 004



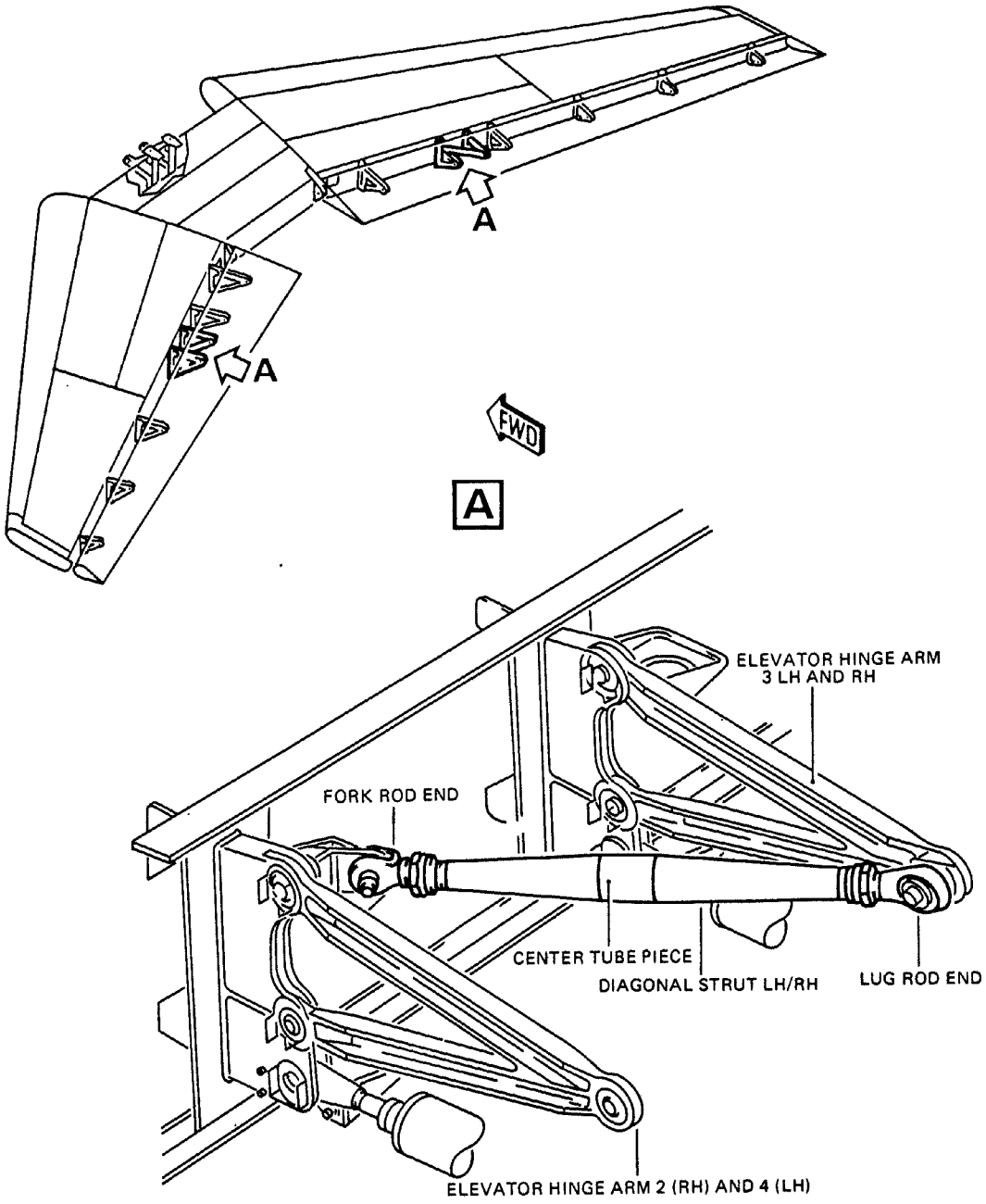
Attach Fitting - Hinges 2, 3 and 4
Figure 005



Hinge Arms - Hinges 2, 3 and 4 (L)
Figure 006



Hinge Arms - Hinges 2, 3 and 4 (R)
Figure 007



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Elevator Diagonal Strut
Figure 008

WARNING: OBEY THE STANDARD WARNINGS BEFORE YOU WORK ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

NOTE: Examine the components carefully.
Do an approved NDT test if there are signs that the component is defective.
Do a structural repair or replace the component, if necessary.

1. Attach Fittings - Visual Inspection

A. Reasons for the Job

R (1)Check measurement of play at bearings of Hinge Arms 1 to 7 at THS
R Rear Spar Attachment Fittings.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform, 5.5 - 14.5 m (18 - 48 ft.)
R (2)	Feeler Gauge
(3)Material No. 05-005	Special Materials (Ref. 20-31-00)
(4)Material No. 05-027	Special Materials (Ref. 20-31-00)

Referenced Procedures

- 51-73-10, P. Block 801	Repair of Minor Damage
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
- 55-13-13, P. Block 401	Trailing Edge Access Panels
- 55-16-11, P. Block 801	Horizontal Stabilizer Attach Fittings
- 55-15-11, P. Block 401	Horizontal Stabilizer Apron

C. Procedure

(1)Job Set-Up
(a)Make horizontal stabilizer (THS) safe (Ref. 55-00-00, P. Block 301).
(b)Position access platform.
(c)Open or remove THS trailing-edge access-panels (Ref. 55-13-13, P. Block 401).
(d)Remove horizontal stabilizer aprons (Ref. 55-15-11, P. Block 401).

(2)Inspection of all Attach Fittings and Hinge Arms
(a)The following areas have specific damage criteria:
1 Attach fittings
2 Hinge arms (except lugs)
3 Damage limits for steps 1 and 2 are as follows:
Scratches
- Compare with diagram (Ref. Fig. 604)

Corrosion and Marks as follow:
For elevator hinge arm (except lugs) on hinge-arms NO. 1 thru 7 - 10% of nominal material thickness, max area 400 mm² (0.62 sq.in.).
Rework limits for flange end are:
Upper and lower arm
'X' = 1.5 mm (0.0591 in.) and 'Y' = 2.0 mm (0.0787 in.) (Ref. Fig. 601).
For THS spar-box attach fittings at RIB5, 10, 14, 17, 21:
- 10% of nominal material thickness, max area 400 mm ² (0.62 sq.in.) at RIB9 and 11:
- 5% of nominal material thickness, max area 400 mm ² (0.62 sq.in.)

NOTE: If attach point for bonding angle is corroded, install angle to opposite side of hinge arm.

Dents and Cracks
- Not permitted

(b) Should damage limits be exceeded, a structural repair must be carried out or component must be replaced.
1 For removal of scratches, marks and dents refer to 51-73-10, P. Block 801.
2 For removal of corrosion on:
- Attach fittings and diagonal struts refer to 51-74-10, P. Block 801.
- Hinge arms refer to 55-16-11, P. Block 801.

(c) Inspect attach fittings, hinge arms and diagonal struts for scratches, marks, dents, corrosion, play, loose or missing rivets and condition of sealant and paint coatings.
1 Pay special attention to the following:
- Hinge arm lugs, bearings, edges and bonding strap attachments.
2 Teflon lined bearings at elevator axis, check that dimension 'X' does not exceed 1 mm (0.039 in), measure according to the following procedure (Ref. Fig. 605).
a Apply force (F) by hand to the threaded end of the bolt while taking measurement.
b Apply force (F1) by hand to the hinge arm in the inboard direction. Measure and record dimension 'A1'.
c Apply force (F2) by hand to the hinge arm in the outboard direction. Measure and record dimension 'A2'.
d Calculate dimension 'X' as follows: X = A1 - A2.
e If dimension 'X' exceeds the allowable limit of 1 mm (0.039 in) replace defective bearing.
3 Bearings at horizontal stabilizer rear spar: apply the same procedure as given for the teflon lined bearing at elevator side; if dimension "X" exceeds the allowable limit of 0.4 mm (0.015 in) replace defective bearing.

R NOTE: Use a feeler gauge to ease this procedure.

(d)Measurement of Minimum Hinge-Arm Lug-Values after Rework (Ref. Fig. 601)

NOTE: Condition A is upper and/or lower surface to be reworked only.
Condition B is upper and/or lower surface plus edge to be reworked.

Aluminum Elevator Hinge Arms, Forward Upper and Lower Lugs (Ref. Fig. 601)

HINGE ARM NO.	CONDITION	LUG THICKNESS VALUES mm (in.)		LUG WIDTH VALUES mm (in.)	
		NOMINAL	MIN.	NOMINAL	MIN.
1, 5, 6, 7	A	11.7 (0.460)	10.5 (0.413)		
	B	11.7 (0.460)	11.1 (0.437)	12.9 (0.508)	11.7 (0.460)
2,3,4	A	11.7 (0.460)	10.5 (0.413)		
	B	11.7 (0.460)	11.1 (0.437)	14.9 (0.586)	13.5 (0.531)

Table 601

Aluminum Elevator Hinge Arms, Aft Lugs (Ref. Fig. 601)

HINGE ARM NO.	CONDITION	LUG THICKNESS VALUES mm (in.)		LUG WIDTH VALUES mm (in.)	
		NOMINAL	MIN.	NOMINAL	MIN.
1, 5, 6, 7	A	11.7 (0.460)	10.5 (0.413)		
	B	11.7 (0.460)	11.1 (0.437)	12.9 (0.507)	11.7 (0.460)
2,3,4	A	16.8 (0.661)	15.2 (0.598)		
	B	16.8 (0.661)	15.9 (0.626)	13.2 (0.519)	11.9 (0.468)

HINGE ARM NO.	CONDITION	LUG THICKNESS VALUES mm (in.)		LUG WIDTH VALUES mm (in.)	
		NOMINAL	MIN.	NOMINAL	MIN.

Table 602

(3)Inspection of Horizontal Stabilizer Attach-Fittings
(Ref. Fig. 602)
(a)Inspect all attach fittings, trim actuator arms and elevator hinge arms on the horizontal stabilizer, in particular those listed below:
1 Horizontal stabilizer trim-actuator arms (1) and trim-actuator arm lugs (3).
2 Horizontal stabilizer trim-actuator arm-fittings (2) and trim-actuator arm-fitting lugs (3).
3 Horizontal stabilizer support-fittings (4), upper and lower attach fittings (5) and stabilizer rear-spar aft-face from RIB3 LH thru RIB3 RH.
4 Attach fitting (6) at horizontal stabilizer rear-spar RIB4 and supporting structure.
5 Attach fittings and support structure for elevator hinge arms at horizontal stabilizer RIB5, 14, 17 and 21.
6 Attach fittings and support structure for elevator hinge arms and hydraulic actuator attachment at horizontal stabilizer RIB 9, 10 and 11.

(4)Do the detailed inspection of horizontal stabilizer attach-fittings No. 1 to 7. (Ref. Fig. 603).

Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
	Dimension/assy mm (in.).		Clearance mm (in.)		Dimension Limits mm (in.).		Max. Allow. Clear mm(in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
A.G.							
ID 4	19.00 (0.7480)	19.02 (0.7488)	0.00	0.034 (0.0013)		19.05 (0.750)	0.1651 (0.0065)
OD 3	18.897 (0.7445)	19.00 (0.7480)			18.8849 (.07440)		
ID 3	15.875 (0.6250)	15.893 (0.6257)	0.014 (0.0006)	0.038 (0.0015)		15.9258 (0.6270)	0.0889 (0.0035)
OD 2	15.855 (0.6242)	15.861 (0.6244)			15.8369 (0.6235)		
ID 2	11.4 (0.4488	11.5 (0.4527)	0.2 (0.0079)	0.4 (0.0157)		11.5316 (0.4540)	0.4445 (0.0175)
OD 1	11.1 (0.4370)	11.2 (0.4409)			11.087 (0.4365)		
E.F.							
ID 7	19.00 (0.7480)	19.02 (0.7488)	0.00	0.034		19.05 (0.750)	0.1651

Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
	Dimension/assy mm (in.).		Clearance mm (in.)		Dimension Limits mm (in.).		Max. Allow. Clear
	Min.	Max.	Min.	Max.	Min.	Max.	mm(in.)
OD 6	18.897 (0.7445)	19.00 (0.7480)		(0.0013)	18.8849 (.07440)		(0.0065)
ID 6	15.875 (0.6250)	15.893 (0.6257)	0.014 (0.0006)	0.038 (0.0015)		15.9258 (0.6270)	0.0889 (0.0035)
OD 5	15.855 (0.6242)	15.861 (0.6244)			15.8369 (0.6235)		
B.C.D Upper/Center							
ID 10	19.00 (0.7480)	19.02 (0.7488)	0	0.034 (0.0013)		19.05 (0.750)	0.1651 (0.0065)
OD 9	18.897 (0.7445)	19.00 (0.7480)			18.8849 (.07440)		
ID 9	15.875 (0.6250)	15.893 (0.6254)	0.014 (0.0006)	0.038 (0.0015)		15.9258 (0.6270)	0.0889 (0.0035)
OD 8	15.855 (0.6242	15.861 (0.6244)			15.8369 (0.6235)		
B.C.D Lower							
ID 13	26.00 (1.0236)	26.021 (1.0244)	0.00	0.034 (0.0013)		26.0477 (1.0255)	0.0635 (0.0025)
OD 12	26.00 (1.0236)	26.034 (1.0249)			25.9842 (1.023)		
ID 12	22.225 (0.8757)	22.246 (0.8765)	0.013 (0.0005)	0.041 (0.0016)		22.2758 (0.8770)	0.0889 (0.0035)
OD 11	22.205 (0.8749)	22.212 (0.8752)					

Table 603

(5)Inspection of Drain Holes
(a)Make sure that the drain holes of the fittings are clean.

(6)Close-Up
(a)Make sure that work area is clean and clear of tools and other equipment.
(b)Apply corrosion-preventive compound (Mat. No. 05-005) to the cadmium plated items with a brush.
(c)Apply moisture-removing oil (Mat. No. 05-027) and corrosion-preventive

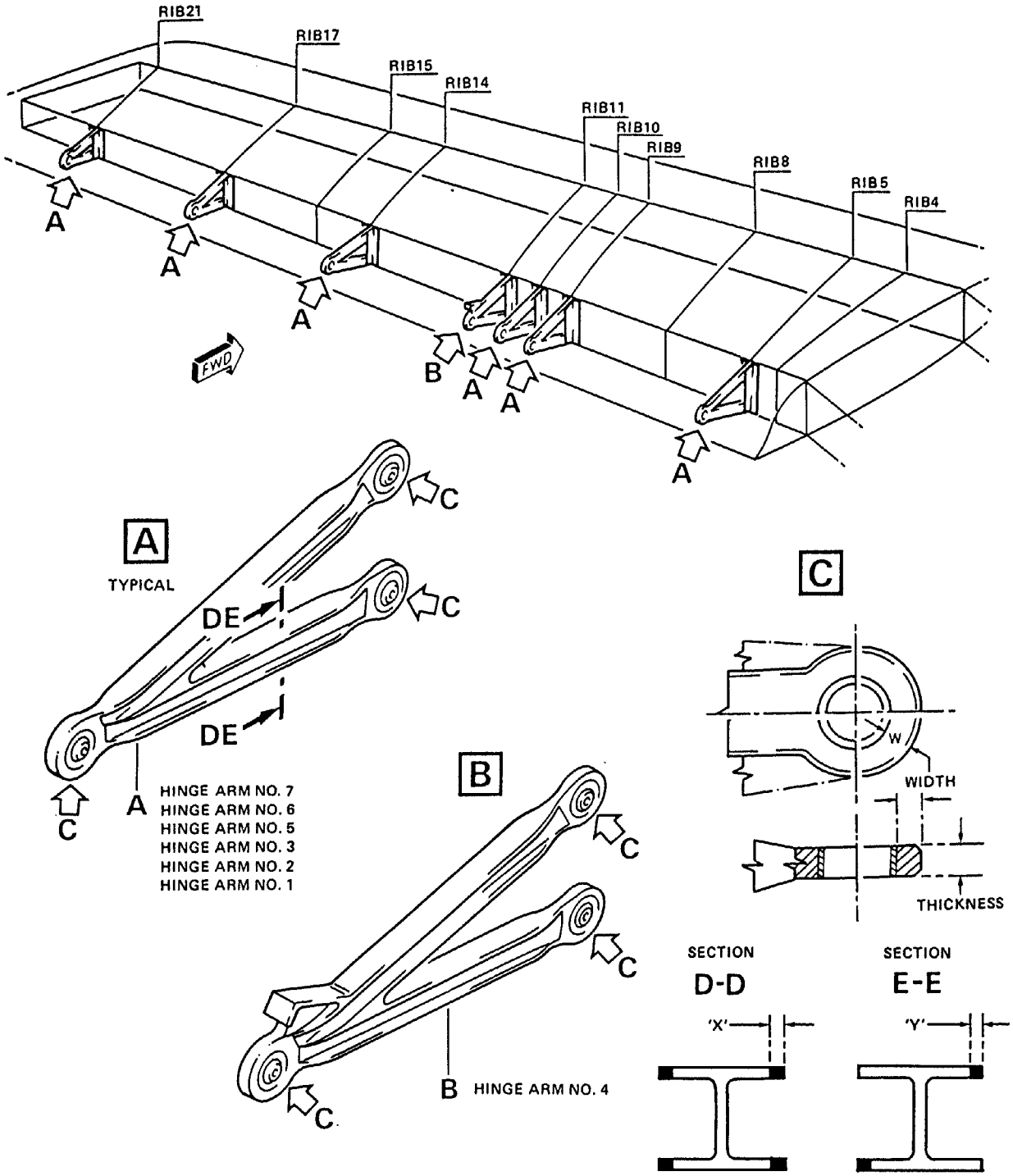
(Mat. No. 05-005) to all machined parts of the rear spar. (Ref. 51-75-10, P. Block 801).

(d) Install the THS aprons (Ref. 55-15-11, P. Block 401).

(e) Install the THS trailing-edge access-panels (Ref. 55-13-13, P. Block 401).

(f) Return the THS to the serviceable condition (Ref. 55-00-00, P. Block 301).

(g) Remove access platform(s).



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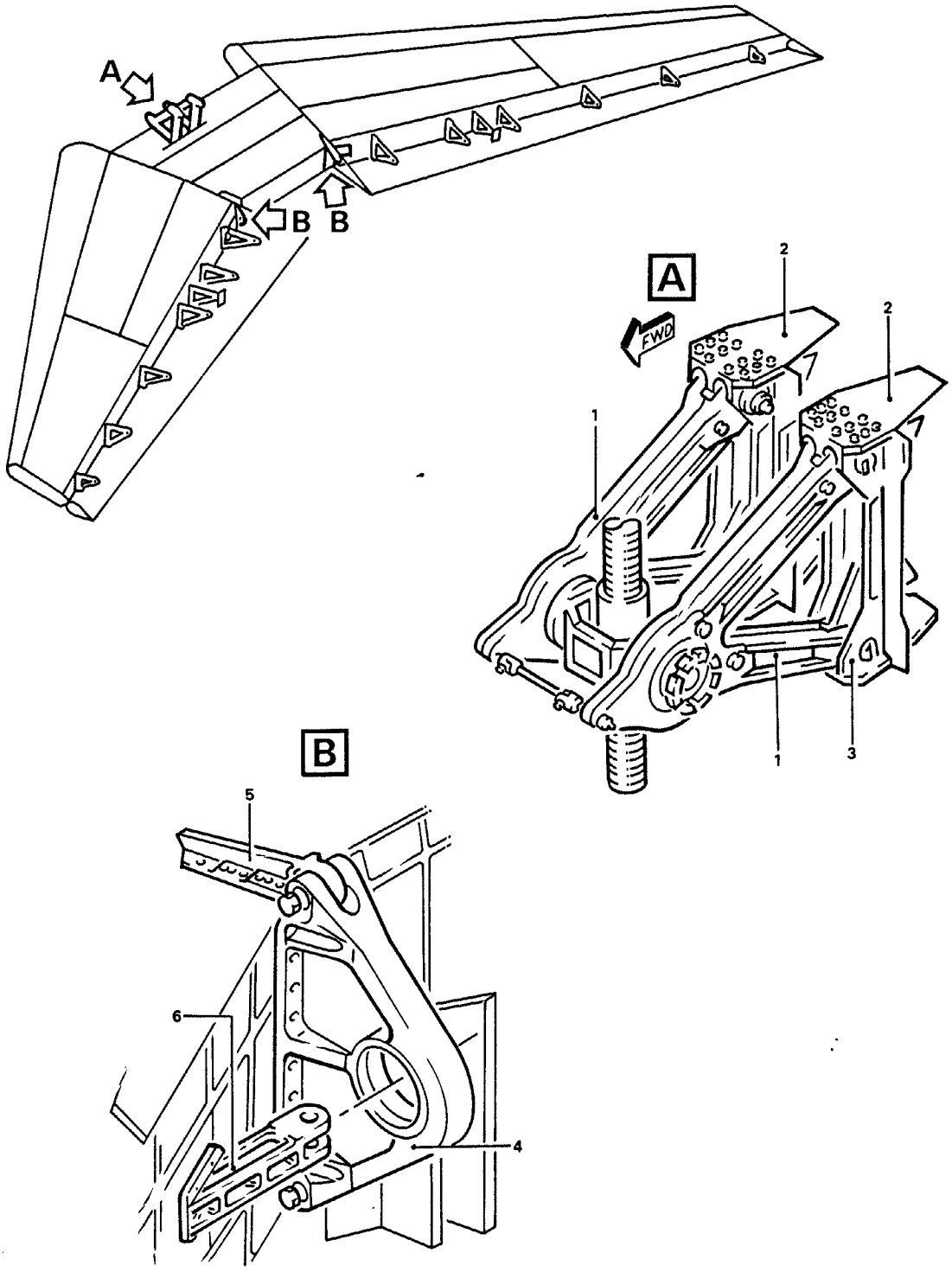
Hinge Arms - Horizontal Stabilizer.
Figure 601



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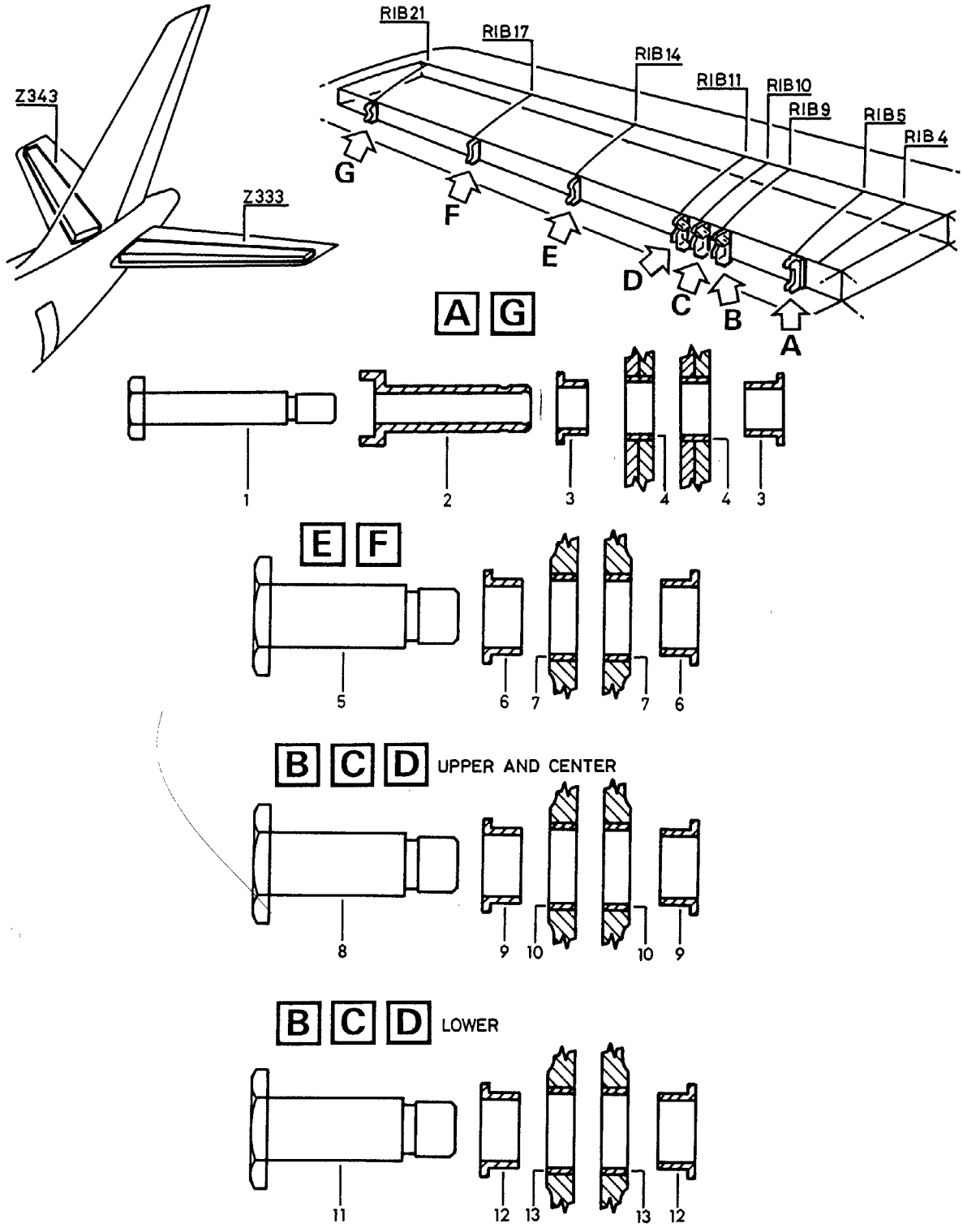
Attach Fittings - THS Center Spar-Box.
Figure 602



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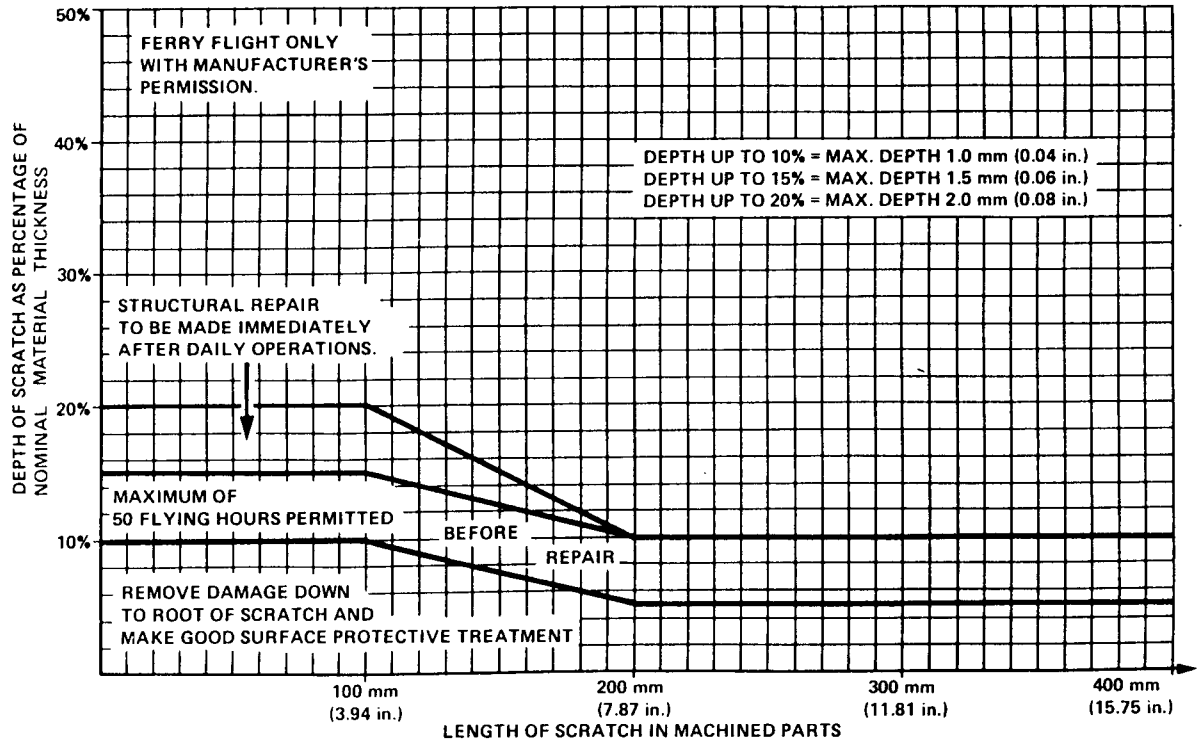
Attach Fittings - Horizontal Stabilizer.
Figure 603



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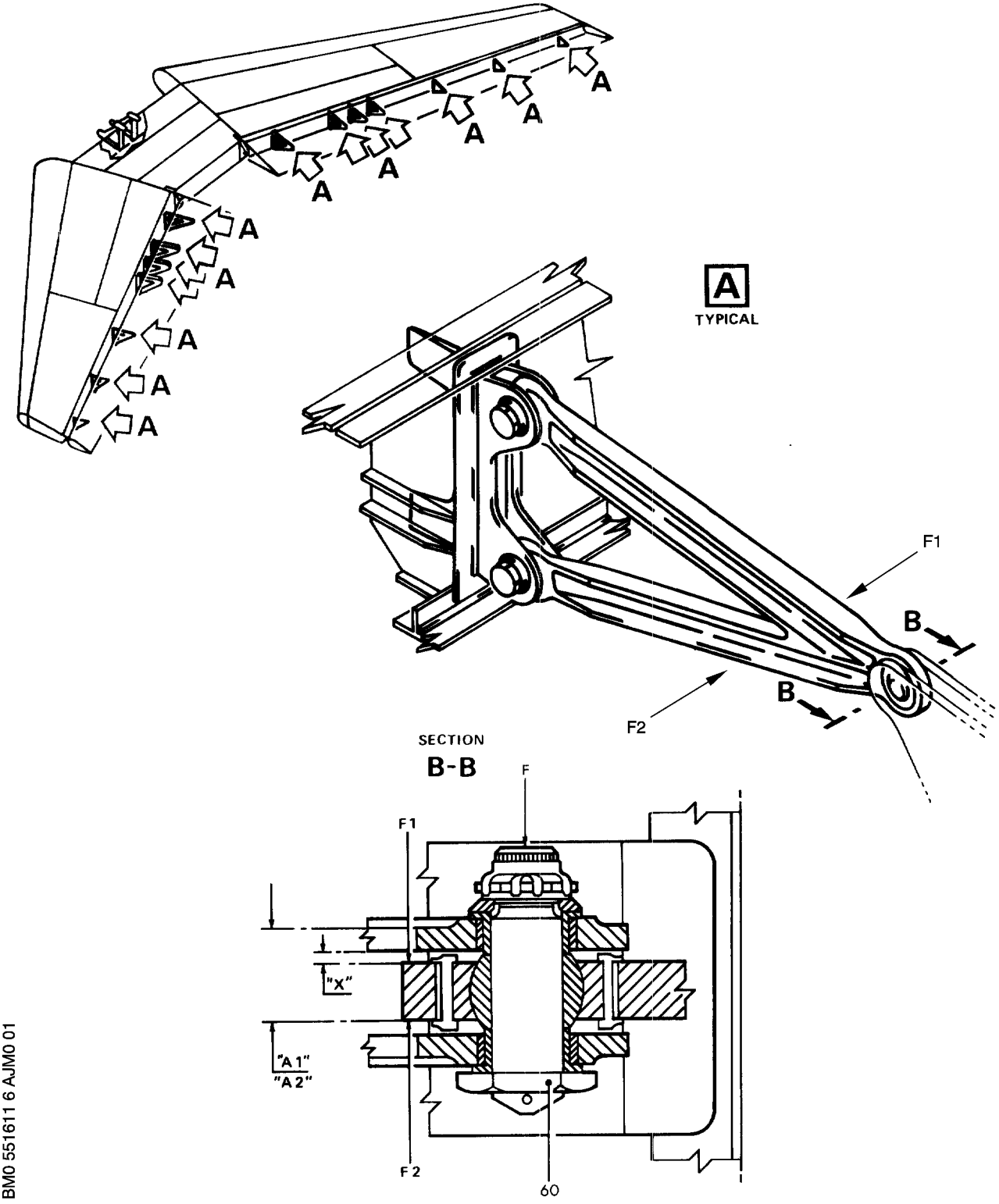
Scratch Limits in Machined Parts.
Figure 604



Hinge Arm Connection - Elevator.
Figure 605

HORIZONTAL STABILIZER ATTACH FITTINGS - APPROVED REPAIRS

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reason for the Job

A. Bearing replacement on elevator hinge arms

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 5.5 - 14.5 m (18 - 48 ft.)
B. 98A55308009000	Milling and Crimping Device, THS Bearings
R C. 98A55308403000	Milling and Crimping Device,RudderBearings
D.	Drilling Machine (Spindle Speed between 50 and 300 rpm)
E.	Protective Gloves
F.	Protective Goggles
G.	Protective Clothing
H.	Brush
J.	Cheesecloth
K.	Masking Tape
L.	Clean, Lint-Free Cloth
M.	Warm Air Dryer
N. Material No. 04-011	Common Greases (Ref. 20-31-00)
P. Material No. 05-005	Special Materials (Ref. 20-31-00)
Q. Material No. 05-027	Special Materials (Ref. 20-31-00)
R. Material No. 05-042	Special Materials (Ref. 20-31-00)
S. Material No. 09-013	Sealants (Ref. 20-31-00)
T. Material No. 09-016	Sealants (Ref. 20-31-00)
U. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
V. Material No. 13-002	Pretreatment for Painting (Ref. 20-31-00)
W. Material No. 16-001	Structure Paints (Ref. 20-31-00)
X. Material No. 16-002	Structure Paints (Ref. 20-31-00)
Y. Material No. 16-003	Structure Paints (Ref. 20-31-00)
Z. Material No. 16-006	Structure Paints (Ref. 20-31-00)
AA.Material No. 16-020	Structure Paints (Ref. 20-31-00)

Referenced Procedures

- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - General Standard Warnings and Procedures
- 55-16-11, P. Block 601	Horizontal Stabilizer Attach Fittings
- 55-16-43, P. Block 401	Elevator Hinge Arms No. 1 and 7
- 55-16-44, P. Block 401	Elevator Hinge Arms No. 2, 3 and 4
- 55-16-45, P. Block 401	Elevator Hinge Arms No. 5 and 6

3. Procedure

A. Job Set-Up
(1)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove elevator hinge arms as required (Ref. 55-16-43, P. Block 401; 55-16-44, P. Block 401; 55-16-45, P. Block 401).

B. Approved Repairs (Ref. Fig. 801)
(1)Removal of bearing and retainer bush
(a)Prepare milling and crimping device P/N 98A55308009000 for the
R hinge arms 2, 3, 4 and device P/N 98A55308403000 for the hinge arms 1, 5, 6, 7 with the cutting tool and attach to a drilling machine.
(b)Mill carefully until flange of bearing retainer bush (3), which is crimped over retainer washer (1), is removed.
(c)Remove retainer washer (1).
(d)Press out and discard retainer bush (3), including bearing (2), using suitable tool.
(2)Preparation for installation
(a)Clean and degrease bush (4) in component bore with cleaning agent (Mat. No. 11-004).
(b)Visually inspect bush (4) in component bore for damage and condition.
(c)Clean and degrease new retainer bush (3) and retainer washer (1) with cleaning agent (Mat. No. 11-004).
(3)Installation of bearing and retainer bush

NOTE : Before installation, make sure the clearance fit between the internal bore of the retainer bush (3) and the outer surface of the new bearing (2) is +0.002/+0.010 mm (+0.000078/+0.000393in). If not, rework the internal bore of the retainer bush (3) in dependance of the bearing outer race tolerances to get the mentioned clearance fits.

(a)Coat mating surfaces of bush (4) in component bore and retainer bush (3) with sealant (Mat. No. 09-013).
(b)Press retainer bush (3) into hinge arm and make certain that machined shoulder rests hard against housing.
(c)Remove excess sealant (Mat. No. 09-013) with clean, lint-free cloth.
(d)Install retainer washer (1) over bush protrusion and make certain that retainer washer rests on housing.
(e)Prepare milling and crimping device with crimping rollers and attach to drilling machine.
(f)Crimp retainer bush (3) to retainer washer (1) using crimping rollers, with taper (showing outwards), for step 1 and parallel surfaces for step 2.
NOTE : Operate drilling machine at low speed.
1 Liberally coat crimping rollers and bush protrusion with silicone grease (Mat. No. 04-011).

2 Start crimping process using moderate pressure.
3 Gradually increase pressure until bush protrusion is completely crimped to retainer washer (1).
4 Remove excess silicone grease (Mat. No. 04-011).

(g)Degrease bore of retainer bush (3) with cleaning agent (Mat. No. 11-004) and allow to dry.
(h)Lightly coat bore of retainer bush (3) with sealant (Mat. No. 09-013).
(j)Degrease outer surface of new bearing (2) with cleaning agent (Mat. No. 11-004) and allow to dry.
(k)Press bearing (2) into retainer bush (3) until bearing (2) rests against machined face of inner ring.
(l)Turn hinge arm over and crimp bush protrusion to bearing (2) using crimping rollers, with taper (showing inwards), for step 3 and parallel surfaces for step 4.
NOTE : Operate drilling machine at low speed.
1 Liberally coat crimping rollers and bush protrusion with silicone grease (Mat. No. 04-011).
2 Start crimping process using moderate pressure.
3 Gradually increase pressure until bush protrusion is completely crimped against bearing face.
4 Remove excess silicone grease (Mat. No. 04-011).
(m)Inspect crimped areas of retainer bush (3) for uniformity and absence of cracks, scratches or splintering.
(n)Protect crimped areas of retainer bush (3).
1 Cover bearing (2) to prevent ingress of cleaning agent and protection paint.
2 Clean and degrease retainer bush (3), retainer washer (1) and joints with cleaning agent (Mat. No. 11-004) and allow to dry.
3 Coat crimped areas with chemical conversion coating (Mat. No. 13-002 and dry with warm air dryer at approx. 50°C (122°F).
4 Apply primer coating (Mat. No. 16-006) to retainer bush (3), retainer washer (1) and joints, and dry with a warm air dryer at approx. 50°C (122°F).
5 Remove cover from bearing (2).
(p)Check effective retention of bearing (2) in hinge arm and that bearing (2) rotates freely and smoothly.

C. Repair of Corroded Hinge Arms
(1)Repair of aluminum hinge arms
(a)Remove corrosion by mechanical method (Ref. 51-74-10, P. Block 801).
(b)Check that extent of corrosion does not exceed limitations (Ref. 55-16-11, P. Block 601).
(c)Round all edges of hinge arm (Ref. Fig. 802).
(d)Mask off bonding strap hole.
(e)Neutralize worked area (Ref. 51-74-10, P. Block 801).
(f)Apply chemical conversion coating (Mat. No. 13-002) to bare metal.
NOTE : If chemical conversion coating (Mat. No. 13-002) is not available, use wash primer (Mat. No. 16-020).

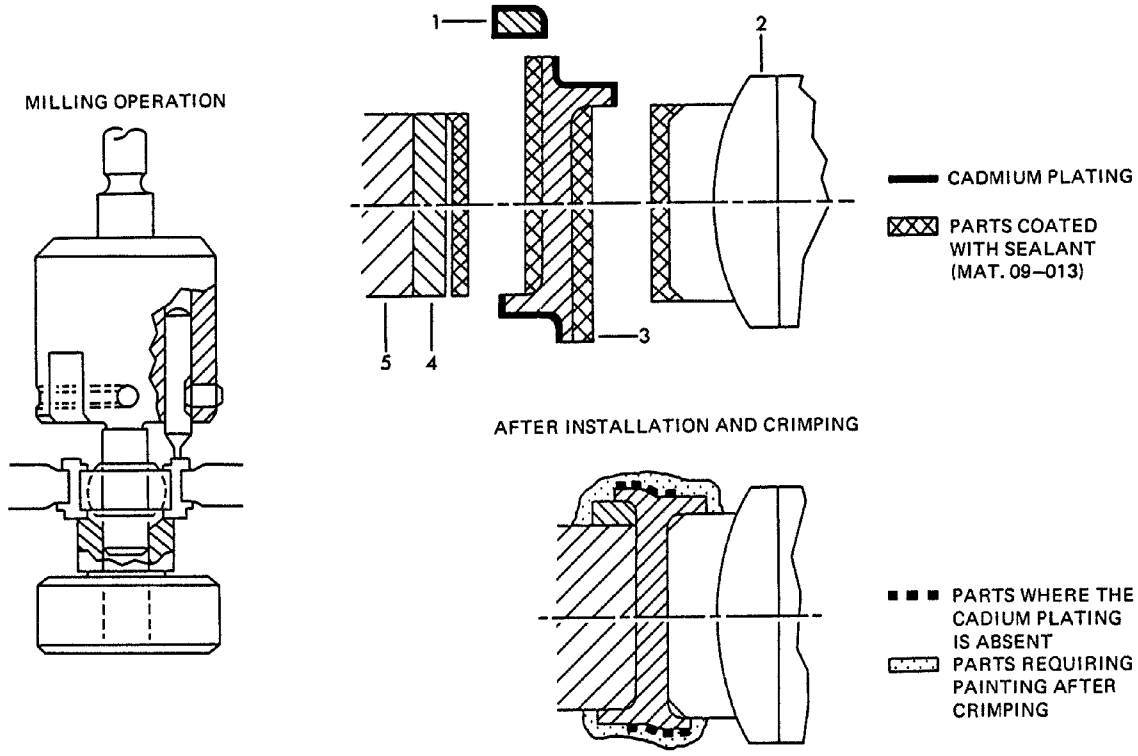
(2)Protection of hinge arms
(a)Apply epoxy primer (Mat. No. 16-006) or polyurethane primer (Mat. No. 16-001).
(b)Apply polyurethane topcoat (Mat. No. 16-002).
(c)Install bearings, if previously removed (Ref. Para. 3.B.).
(d)Apply sealant bead (Mat. No. 09-016) around bush (Ref. Fig. 802).
(e)Protect sealant bead with nylon coating (Mat. No. 16-003).
(f)Apply moisture-removing oil (Mat. No. 05-027) to hinge arms (Ref. 51-75-10, P. Block 801).
(g)Apply corrosion-preventive compound (Mat. No. 05-005) to lugs, bonding strap attachments and edges of crosshatched areas (Ref. 51-75-10, P. Block 801).
(h)Remove masking from repaired area and bonding holes.

D. Repair of Chafed Attach Fittings

NOTE : Should depth of chafing on flanges of attach fittings exceed 2.5 mm (0.1 in.), a structural repair must be carried out.

(1)Rework chafed area by deburring and smoothing sharp edges.
(2)Apply epoxy primer (Mat. No. 16-006) or polyurethane primer (Mat. No. 16-001).
(3)Apply polyurethane topcoat (Mat. No. 16-002).

E. Close-Up
(1)Install elevator hinge arms if removed (Ref. 55-16-43, P. Block 401, 55-16-44, P. Block 401, 55-16-45, P. Block 401).
(2)Make certain working area is clean and clear of tools and miscellaneous items of equipment.
(3)Remove access platform.
(4)Remove warning notices displayed in 3.A.(1).
(5)Remove safety clips and tags and close circuit breakers opened in 3.A. (1).



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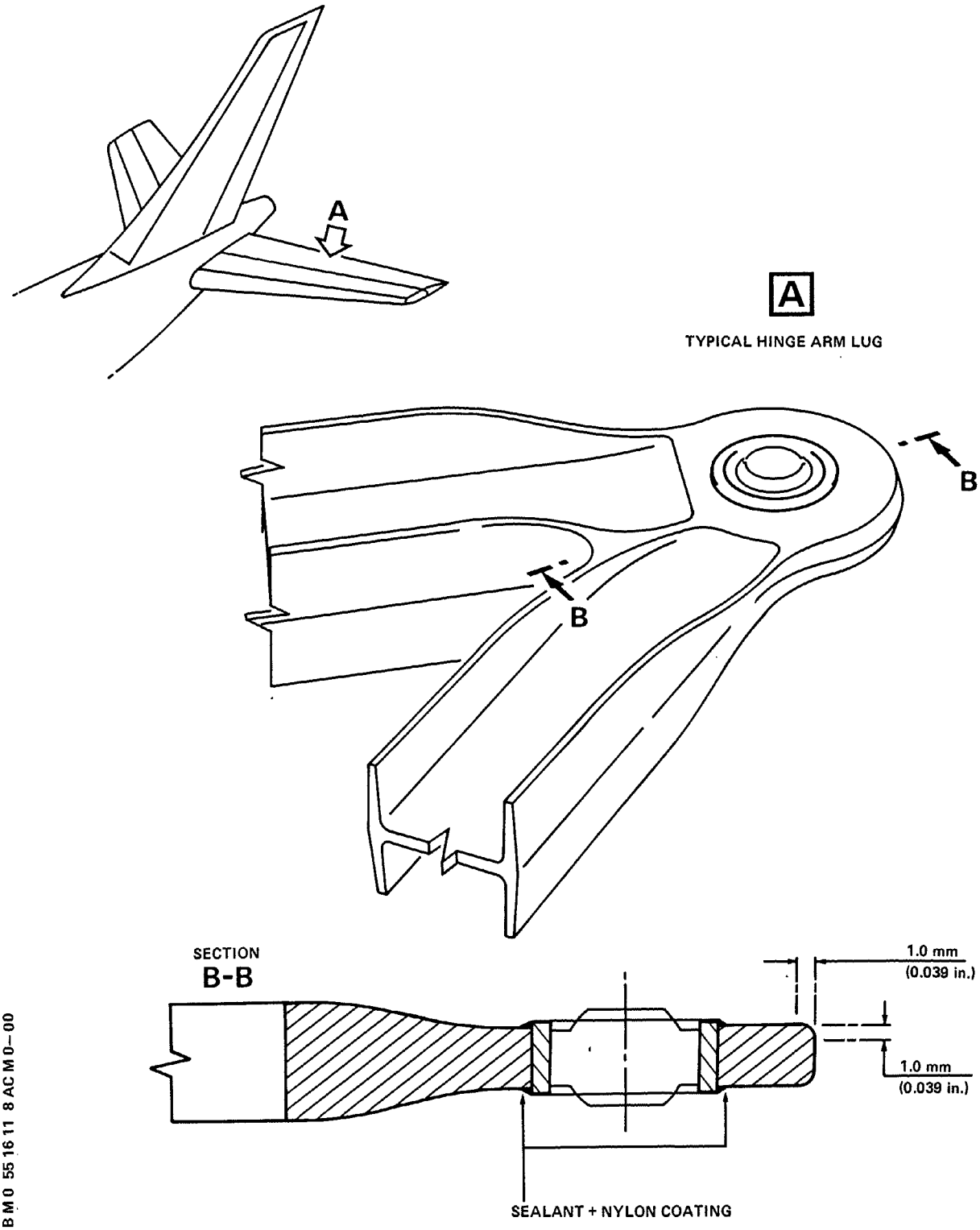
Milling and Crimping of Bearings
Figure 801



Hinge Arms
Figure 802

WARNING: STANDARD WARNINGS MUST BE OBEYED WHEN YOU DO WORK ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reasons for the Job

A. Removal of the Horizontal-Stabilizer Hydromechanical Actuator

B. Check for the Wear

C. Removal of the Horizontal Stabilizer

2. Equipment and Materials

	ITEM	DESIGNATION
	A.	Access Platform 5 m (16 ft.)
	B. OU190362	Tool - Brake Release, THS Actuator
	C. OU190358	Tool - O Location, THS Actuator
	D. OU190359	Screw - Fixing, O Tool P/N OU190358
	E. OU190360	Rigging Pin - THS Actuator Mechanical Input Lever
	F. 97A27302009000	Locking Equipment - Pitch Trim Control Wheel
	G. 98A27207507001	Extractor - Rudder Bearings
R	H. 98A27207507700	Socket Wrench (part of tool 98A27207507001)
R	J. 98A27407514001	Fixture - Strut, Horizontal Stabilizer
R	K. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK
R	L. SL90.314-.3750	Tool - Extraction, Nuts NSA5454
R		(for STA-LOK System)
R	M. SL90.315-.3750	Wrenches - Notched, Nuts NSA5454
R		(for STA-LOK System)
R	N. SL90.359-.3750	Tool - Installation, Lockwashers for Nuts
R	SL90.313-.3750	NSA5454 (for STA-LOK System)
R	P. 98A53207606000	Panels - Floor, Fuselage Tail Section
R	Q. 98F55109001000	Groove Nut Wrench for nut A55171287
R	R. 98AMS172329002	Groove Nut Wrench for nut A551737520000
R	S. 98AMS172329003	Groove Nut Wrench for nut a551737520200
R	T.	Tab Washers
R	U.	Cotter Pins
R	V. Material No. 04-004	Common Greases (Ref. 20-31-00)
	Referenced Procedures	
	- 27-41-00, P. Block 501	Trimmable Horizontal Stabilizer Control
	- 27-44-17, P. Block 401	THS Spherical Bearings
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/

	Depressurization
- 55-00-00, P. Block 301	Stabilizers - General Standard Warnings and Procedures
- 55-16-36, P. Block 601	THS Actuator Arm

3. Procedure

A. Job Set-Up (Ref. Fig. 401)

(1)Pressurize the hydraulic systems (Ref. 29-10-00, P. Block 301) and trim the horizontal stabilizer to the neutral position.
(2)Make the horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(3)Put the access platform.
(4)Open the access door 312AR.
(5)Install the maintenance floor panels P/N 98A53207606000.
(6)Lock the horizontal stabilizer as follows (Ref. Fig. 401)
(a)Attach the brake release THS-actuator P/N 0U190362 and manually move the horizontal stabilizer into zero position.
(b)Install the locking equipment P/N 97A27302009000 at the pitch-trim control-wheel in the flight compartment.
(c)Install the rigging pin P/N 0U190360 in THS-actuator mechanical input.
(d)Install and adjust the horizontal-stabilizer fixture strut P/N 98A27407514001 to remove the load from the trim actuator nut.
(7)Install the tool P/N 0U190358 between THS actuator and screwshaft nut with the fixing screw P/N 0U190359 (***//AAM0//***).

B. Removal of the THS-Actuator Hinge Arms with SHUR-LOK System (Ref. Fig. , 402)

(1)Remove and discard the cotter pin (17), remove the nut (18), the washer (19), the bolt (22) and disconnect the rod (16).
(2)Remove the actuator hinge arms, (14) and (23).

CAUTION: IDENTIFY THE BOLTS, THE SLEEVES AND THE SIMILAR SMALL COMPONENTS TO ENSURE THE INSTALLATION IN THE ORIGINAL POSITIONS.

(a)Remove the lockwashers (9) with the SHUR-LOK tool-set P/N 98A27907509000.
(b)Remove nuts (8) with the socket wrench P/N 98A27207507700, part of tool P/N 98A27207507001.
(c)Remove and discard the cotter pins (2).
(d)Remove the bolts (1).
(e)Remove the grooved nuts (6) with the wrench P/N 98AMS172329003.
(f)Remove the sleeves (3) and the washers (7).
(g)Remove the actuator hinge arms, (14) and (23), forward out of the THS-actuator arm-attach fittings (4) and (10).
(h)Remove the actuator hinge arm (14) from the trim actuator nut (15), as follow:
1 Remove the cotter pin (33) and discard it.
2 Remove the grooved nut (34) with the wrench P/N 98F55109001000.
3 Remove the bush (35) and the washer (36).
4 Release the tab washer (12).
5 Remove the bolt (11), the tab washer (12) and the end cap (13).

6 Remove the spherical bearing (21).
7 Remove the actuator hinge arm (14) from the journal bearing of the trim actuator nut (15).

(j)Remove the actuator hinge arm (23) from the actuator nut (15) as follow:
1 Release the tab washer (12).
2 Remove the bolt (11), the tab washer (12) and the end cap (13).
3 Remove the spherical bearing (21).
4 Remove the actuator hinge arm (23) from the trim actuator nut (15).

C. Removal of the THS-Actuator Hinge Arms with STA-LOK System
(Ref. Fig. , 402)

(1)Remove and discard the cotter pin (17), remove the nut (18), the washer (19), the bolt (22) and disconnect the rod (16).

(2)Remove the actuator hinge arms, (14) and (23):

CAUTION: IDENTIFY THE BOLTS, THE SLEEVES AND THE SIMILAR SMALL COMPONENTS TO ENSURE THE INSTALLATION IN THE ORIGINAL POSITIONS.

(a)Remove and discard the cotter pins (2).
(b)Remove the O-rings (30) and the lockwashers (31) with tool-extraction P/N SL90.314-.3750.
(c)Remove the nuts (32) with notched wrench P/N SL90.315-.3750.
(d)Remove the bolts (1).
(e)Remove the grooved nuts (6) with the wrench P/N 98AMS172329002.
(f)Remove the sleeves (3) and the washers (7).
(g)Remove the actuator hinge arms,(14) and (23), forward out of the THS-actuator arms fittings (4) and (10).
(h)Remove the actuator hinge arm (14) from the trim actuator nut (15), as follow:
1 Remove the cotter pin (33) adn discard it.
2 Remove the grooved nut (34) with the wrench P/N 98F55109001000.
3 Remove the bush (35) and the washer (36).
4 Release the tab washer (12).
5 Remove the bolt (11), the tab washer (12) and the end cap (13).
6 Remove the spherical bearing (21).
7 Remove the actuator hinge arm (14) from the journal bearing of the trim actuator nut.

(j)Remove the actuator hinge arm (23) from the trim actuator nut (15), as follow:
1 Release the tab washer (12).
2 Remove the bolt (11), the tab washer (12) and the end cap (13).
3 Remove the spherical bearing (21).
4 Remove the actuator hinge arm (23) from the trim actuator nut (15).

R

D. Preparation for Installation

(1)Do an inspection of the spherical bearings for signs of wear.

Replace the two spherical bearings if one of the two needs to be replaced. (Ref. 27-44-17, P. Block 401).

R E. Installation of the THS-Actuator Hinge Arms with SHUR-LOK System (Ref. Fig. , 402)

R (1)Install the actuator hinge arm (23) in the trim actuator nut (15), as follow:
R (a)Install the actuator hinge arm (23).
R (b)Insert the spherical bearing (21).
R (c)Install the end cap (13).
R (d)Install the tab washer (12) and the bolt (11).
R (e)TORQUE the bolt (11) to between 2.28 and 2.52 m.daN (16.9 and 18.7 lbf. ft.) and safety with the tab washer (12).
R (2)Install the actuator hinge arm (14) in the trim actuator nut (15), as follow:
R (a)Install the actuator hinge arm (14).
R (b)Insert the spherical bearing (21).
R (c)Install the end cap (13) so that dowel in journal bearing of the trim actuator nut (15) locates in the hole of the end cap (13).
R (d)Install the tab washer (12) and the bolt (11).
R (e)TORQUE the bolt (11) to between 2.28 and 2.52 m.daN (16.9 and 18.7 lbf. ft.) and safety with the tab washer (12).
R (f)Install the washer (36), the bush (35) and the nut (34).
R (g)Make sure that the cotter pin hole in the bush (35) aligns with the cotter pin hole in the bush of the actuator hinge arm (14).
R (h)TORQUE the nut (34) to 10.00 m.daN (73.80 lbf. ft.) with the wrench P/N 98F55109001000 and safety with a new cotter pin (33).
R If the cotter pin holes in the bush (35) and in the bush of the actuator hinge arm (14) and the nut (34) do not align:
R - use the existing holes in the bush (35) and in the bush of the actuator arm and drill a 2.8 mm (0.1102 in.) dia. hole in the nut (34). The minimum distance between the new and the existing hole is 10 mm (0.3937 in.).
R If the torque range does not allow to ensure the 10 mm (0.3937 in.) distance between the new and the existing cotter pin hole:
R - rotate the bush (35) at 90 or 180 deg. from the existing hole of the bush of the actuator hinge arm,
R - use the existing hole in the bush (35) as reference and drill a 2.8 mm (0.1102 in.) dia. hole in the bush of the actuator hinge arm and the nut (34).
R Install the cotter pin (33).
(3)Attach the actuator hinge arms, (14) and (23), to the THS-actuator arm attach fittings, (4) and (10), as follow:
(a)Apply grease (Material No. 04-004) to the the sleeves (3) and the bolts (1).
(b)Insert the actuator hinge arms, (14) and (23), into the THS-actuator arm-attach fittings, (4) and (10), and install the sleeves (3) and the washers (7).
(c)Install the grooved nuts (6).

R (d)TORQUE the grooved nuts (6) to between 0.71 and 0.86 m.daN
R (63 and 76 lbf.in.) with the wrench 98AMS172329002.
(e)Check the clearances (Ref. 55-16-36, P. Block 601).
(f)Install the bolts (1) and the slotted ring nuts (8).
(g)TORQUE the slotted ring nuts (8) to between 0.44 and 0.52 m.daN (39 and 46 lbf.in.) with the socket wrench P/N 98A27207507700, part of the tool P/N 98A27207507001.
(h)Install the lockwashers (9) with the SHUR-LOK tool-set P/N 98A27907509000.
(j)Safety the sleeves (3) and the bolts (1) with the cotter pins (2).
R

F. Installation of the THS-Actuator Hinge Arms with STA-LOK System
(Ref. Fig. , 402)
(1)Install the actuator hinge arm (23) in the trim actuator nut (15), as follow:
(a)Install the actuator hinge arm (23).
(b)Insert the spherical bearing (21).
(c)Install the end cap (13).
(d)Install the tab washer (12) and the bolt (11).
(e)TORQUE the bolt (11) to between 2.28 and 2.52 m.daN (16.9 and 18.7 lbf. ft.) and safety with the tab washer (12).
(2)Install the actuator hinge arm (14) in the trim actuator nut (15), as follow:
(a)Install the actuator hinge arm (14).
(b)Insert the spherical bearing (21).
(c)Install the end cap (13) so that dowel in journal bearing of the trim actuator nut (15) locates in the hole of the end cap (13).
(d)Install the tab washer (12) and the bolt (11).
(e)TORQUE the bolt (11) to between 2.28 and 2.52 m.daN (16.9 and 18.7 lbf. ft.) and safety with the tab washer (12).
(f)Install the washer (36), the bush (35) and the nut (34).
(g)Make sure that the cotter pin hole in the bush (35) aligns with the cotter pin hole in the bush of the actuator hinge arm (14).
(h)TORQUE the nut (34) to 10.00 m.daN (73.80 lbf. ft) with the wrench P/N 98F55109001000 and safety with a new cotter pin (33).
If the cotter pin holes in the bush (35) and in the bush of the actuator hinge arm (14) and the nut (34) do not align:
- use the existing holes in the bush (35) and in the bush of the actuator arm and drill a 2.8 mm (0.1102 in.) dia. hole in the nut (34). The minimum distance between the new and the existing hole is 10 mm (0.3937 in.).

If the torque range does not allow to ensure the 10 mm (0.3937 in.) distance between the new and the existing cotter pin hole:
- rotate the bush (35) at 90 or 180 deg. from the existing hole of the bush of the actuator hinge arm,
- use the existing hole in the bush (35) as reference and drill a 2.8 mm (0.1102 in.) dia. hole in the bush of the actuator hinge arm and the nut (34).

Install the cotter pin (33).

(3)Attach the actuator hinge arms, (14) and (23), to the THS-actuator arm attach fittings, (4) and (10), as follows:
(a)Apply grease (Material No. 04-004) to the the sleeves (3) and the bolts (1).
(b)Insert the actuator hinge arms, (14) and (23), into the THS-actuator arm-attach fittings, (4) and (10), and install the sleeves (3) and the washers (7).
(c)Install the grooved nuts (6).
(d)TORQUE the grooved nuts (6) to between 0.71 and 0.86 m.daN (63 and 76 lbf.in.) with the wrench 98AMS172329002.
(e)Check the clearances (Ref. 55-16-36, P. Block 601).
(f)Install the bolts (1) and the nuts (32).
(g)TORQUE the nuts (32) to between 0.44 and 0.52 m.daN (39 and 46 lbf.in) with notched wrench P/N SL90.315-.3750.
(h)Install the lockwashers (31) and the O-rings (30) with tool P/N SL90.359-.3750 or tool P/N SL90.313-.3750.
(j)Safety the sleeves (3) and the bolts (1) with the cotter pins (2).

R

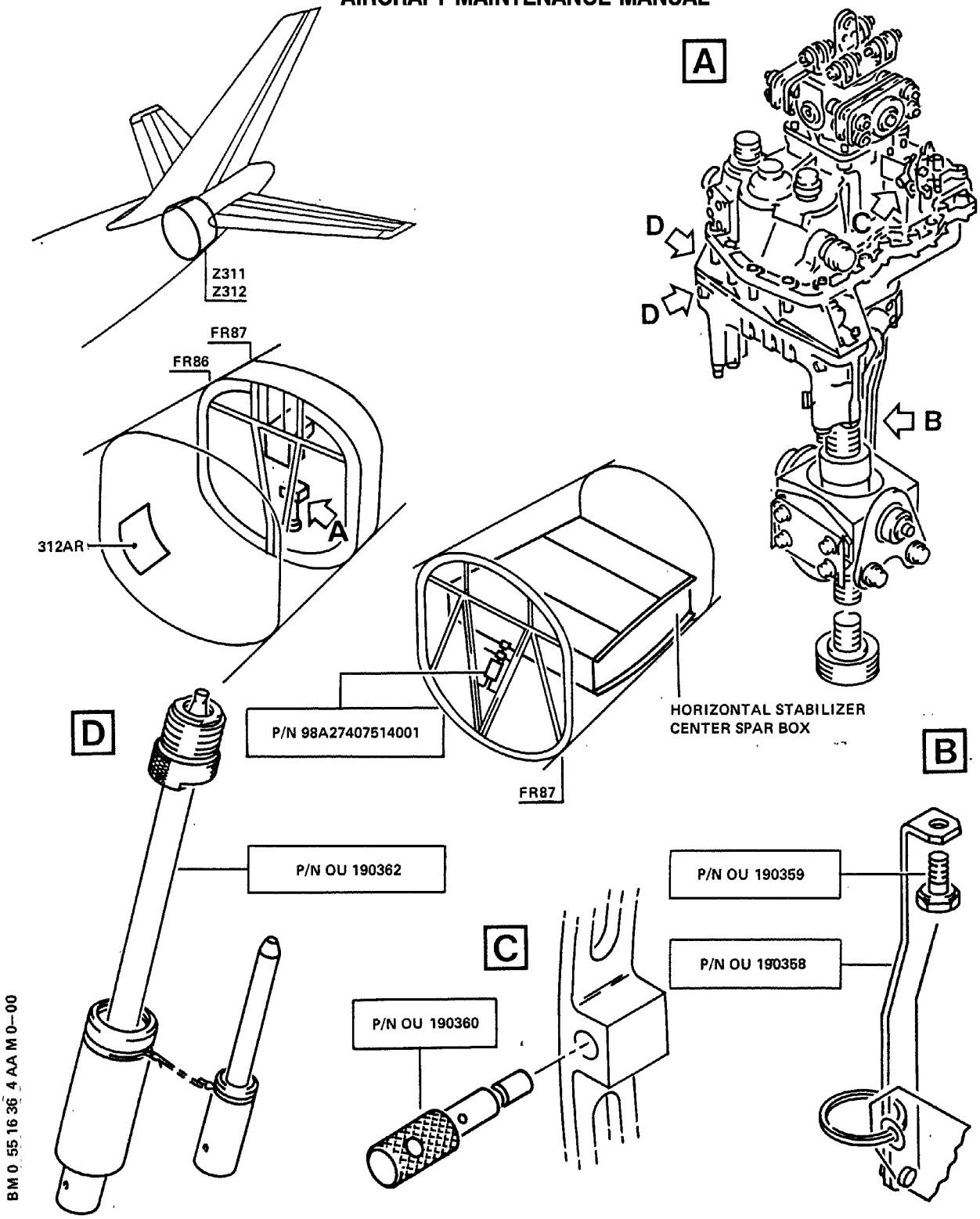
G. Installation of the Rod and Fork Ends
(Ref. Fig. 402)
(1)Align the rod (16) with the fork end (20), install the bolt (22), the washer (19) and the nut (18), but do not tighten.
(2)Make sure that the distance between the inboard faces of the actautor hinge-arm fittings, (14) and (23), is 224 mm (8.82 in.).
(3)If required adjust gap between the actuator hinge arms, (14) and (23), as follows:
(a)Remove the nut (18), the washer (19), the bolt (22) and the rod (16) from the fork end (20).
(b)Release the tab washers (27), remove the nuts (28), the fork ends (20) and the tab washers (27).
(c)Install the fork ends (20), with new the tab washers (27).
(d)Install the nuts (28) but do not tighten.
(e)Align the connecting link (16) with the fork end (20), install the bolt (22), the washer (19) and the nut (18) but do not tighten.
(f)Adjust the nuts (29) until correct distance between the actuator hinge arms, (14) and (23), is obtained.
(g)Make sure that the fork ends (20) project equally on both sides.
(h)Fully tighten the nuts, (28) and (29), and safety with the tab washers (27).
(4)Fully tighten the nut (18) and safety with the cotter pin (17).

H. Remove the safety devices
(Ref. Fig. 401)
(1)Remove the locking brackets, P/N 0U190358 and P/N 0U190359.
(2)Remove the horizontal-stabilizer fixture strut P/N 98A27407514001.
(3)Remove the locking pin P/N 0U190360.
(4)Remove the manual-movement trim-actuator adapter P/N 0U190362.

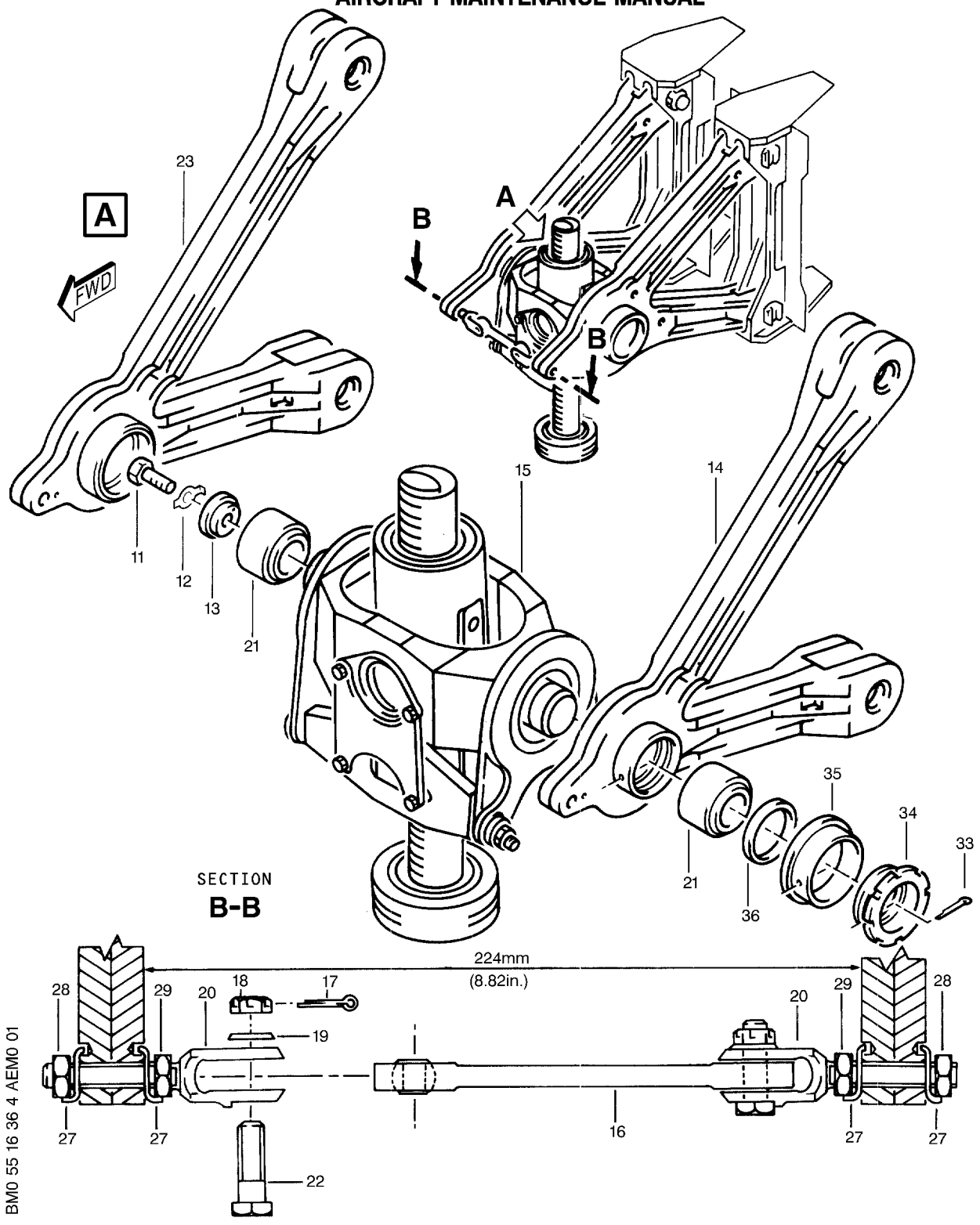
(5)Remove the locking equipment P/N 97A27302009000.
(6)Remove the warning notices.
(7)Remove the safety clips and tags, and close the circuit breakers previously opened.
(8)Make sure that the travel ranges of all flying control surfaces are clear of obstruction.

J. Test
(1)Do a functional test of trimmable horizontal stabilizer.
(Ref. 27-41-00, P. Block 501).

K. Close-Up
(1)Make sure that the work area is clean and clear of tools and other items.
(2)Remove the maintenance floor panels P/N 98A53207606000.
(3)Close the access door 312AR.
(4)Return the stabilizer to the normal operating condition.
(Ref. 55-00-00, P. Block 301).
(5)Remove the access platform.



Locking Points
Figure 401



Connection Rods and Fork Ends
Figure 402

WARNING: STANDARD WARNINGS MUST BE OBEYED WHEN YOU DO WORK ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. Block 301).

1. Reasons for the Job

A. Check of the Gaps

B. Check of the Fits and the Clearances of the Bushes, the Sleeves and the Bearings

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 5 m (16ft.)
B. Material No. 05-027	Special Materials (Ref. 20-31-00)

Referenced Procedures

- 27-41-00, P. Block 501	Mechanical Control (THS)
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-16-36, P. Block 401	THS Actuator Arm

3. Procedure

A. Job Set-Up

(1)Make the horizontal stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Put the access platform.
(3)Open the access door 312AR.

B. Check of the Distances (Ref. Fig. 601)

(1)Make sure that the distance 'c', between the nut (10) and the bush (8), is between 0.6 ± 0.3 mm (0.024 ± 0.012 in.).
(2)Make sure that the distance 'd', between the washer (11) and the bush (8), is between 0.6 ± 0.3 mm (0.024 ± 0.012 in.).
(3)Replace the component if the dimensions of the distances are larger than the given limits.
(4)Make sure that the distance 'e', between the inner face of the actuator arms, (1) and (2), is 224 mm (8.82 in.). Adjust the link (14) as necessary. (Ref. 55-16-36, P. Block 401).

R **ON A/C 001-100, 105-200,

R Post SB 55-2021 For A/C 001-100,105-200,

B. Check of the Distances (Ref. Fig. 602)

(1)Make sure that the distance 'e', between the inner face of the actuator arms, (1) and (2), is 224 mm (8.82 in.). Adjust the link (14) as necessary. (Ref. 55-16-36, P. Block 401).

R **ON A/C ALL

C. Inspection of the Bearings (Ref. Fig. 601, 602)

(1)Examine the bearings (4) for signs of wear.
(a)Replace the two bearings if one of the two needs to be replaced. (Ref. 55-16-36, P. Block 401).

D. Check of the Fits and the Clearances

(1)Remove the actuator arms, (1) and (2). (Ref. 55-16-36, P. Block 401).
(2)Examine all bearings, bushes and bolts for cracks, corrosion and marks. Replace the damaged components.
(3)Make sure that the bushes (7) protrude 1.7 mm (0.067 in.) on each actuator arm, (1) and (2).
(4)Make sure that the bushes (6) protrude 0.1 mm (0.004 in.) on each actuator arm, (1) and (2).
(5)Make sure that the bushes, (8) and (9), protrude 0.1 mm (0.004 in.) each side of the attach fittings, (12) and (13).
(6)Measure the fits and the clearances of components as listed in the following table (Ref. Fig. 601, 602):

Detail and Item No.	Original Mfg Limits: Dimension/assy mm (in.) Min.	Original Mfg Limits: Dimension/assy mm (in.) Max.	Original Mfg Limits: Clearance mm (in.) Min.	Original Mfg Limits: Clearance mm (in.) Max.	In-Service Wear Limits: Dimension Limits mm (in.) Min.	In-Service Wear Limits: Dimension Limits mm (in.) Max.	In-Service Wear Limits: Max. Allow. clear mm (in.)
B-B ID 6, 7, 8, 9	22.225 (0.8750)	22.246 (0.8758)					
			0.000 (0.000)	0.034 (0.0014)	no wear permissible		
OD5	22.212 (0.8745)	22.225 (0.8750)					
C-C ID3	61.912 (2.4375)	61.925 (2.4380)					
			-0.001 -0.00004	0.025 0.0010	no wear permissible		
OD4	61.900 (2.4370)	61.913 (2.4375)					

Table 601

(7)Replace the components if the dimensions of the fits and the clearances are larger than the given limits.
(8)Install the actuator arms, (1) and (2). (Ref. 55-16-36, P. Block 401).

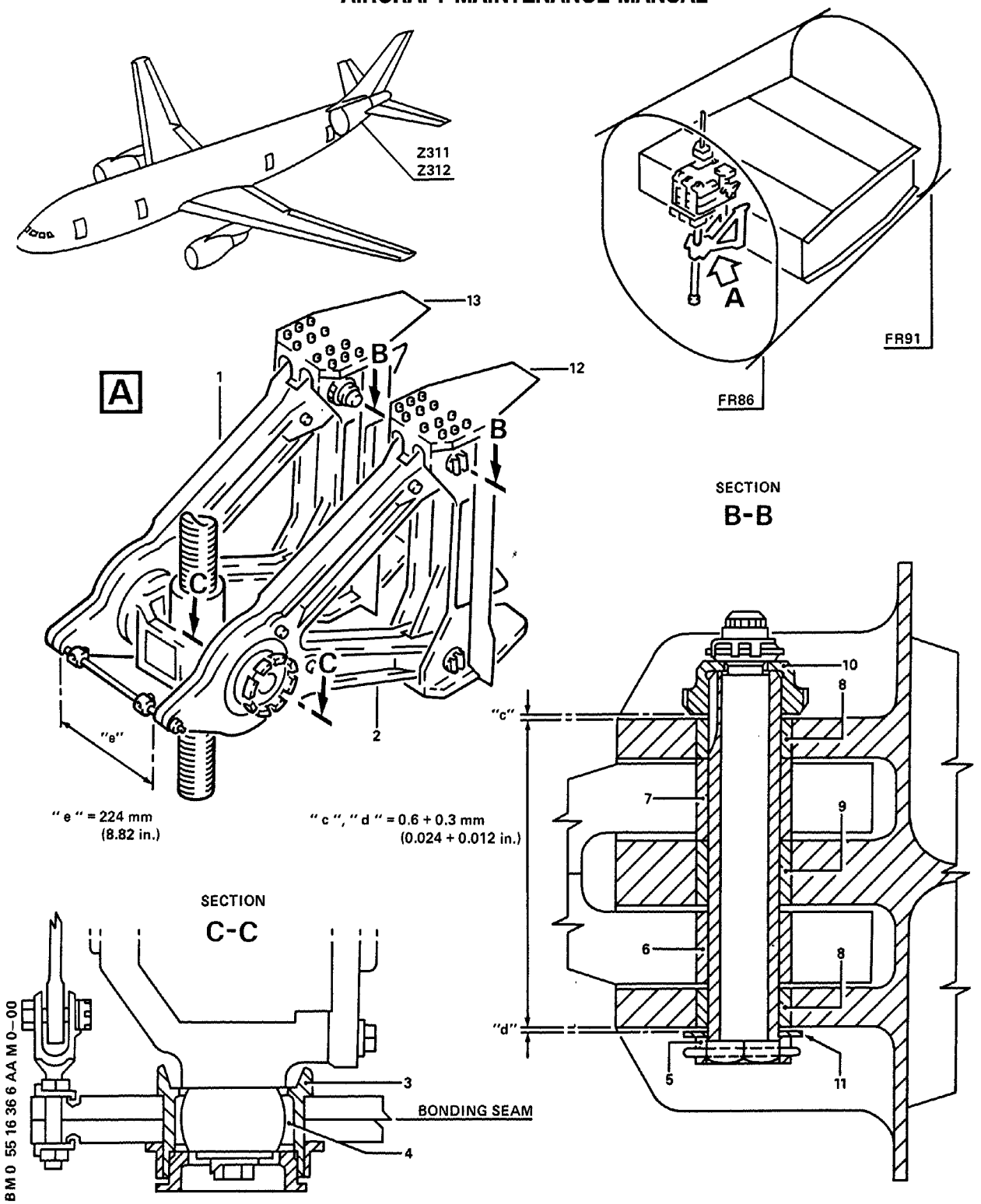
E. Test

(1)Remove the safety clips and tags, and close circuit breakers previously opened in 3.A.(1).
(2)Do a functional test of the horizontal stabilizer (Ref. 27-41-00,

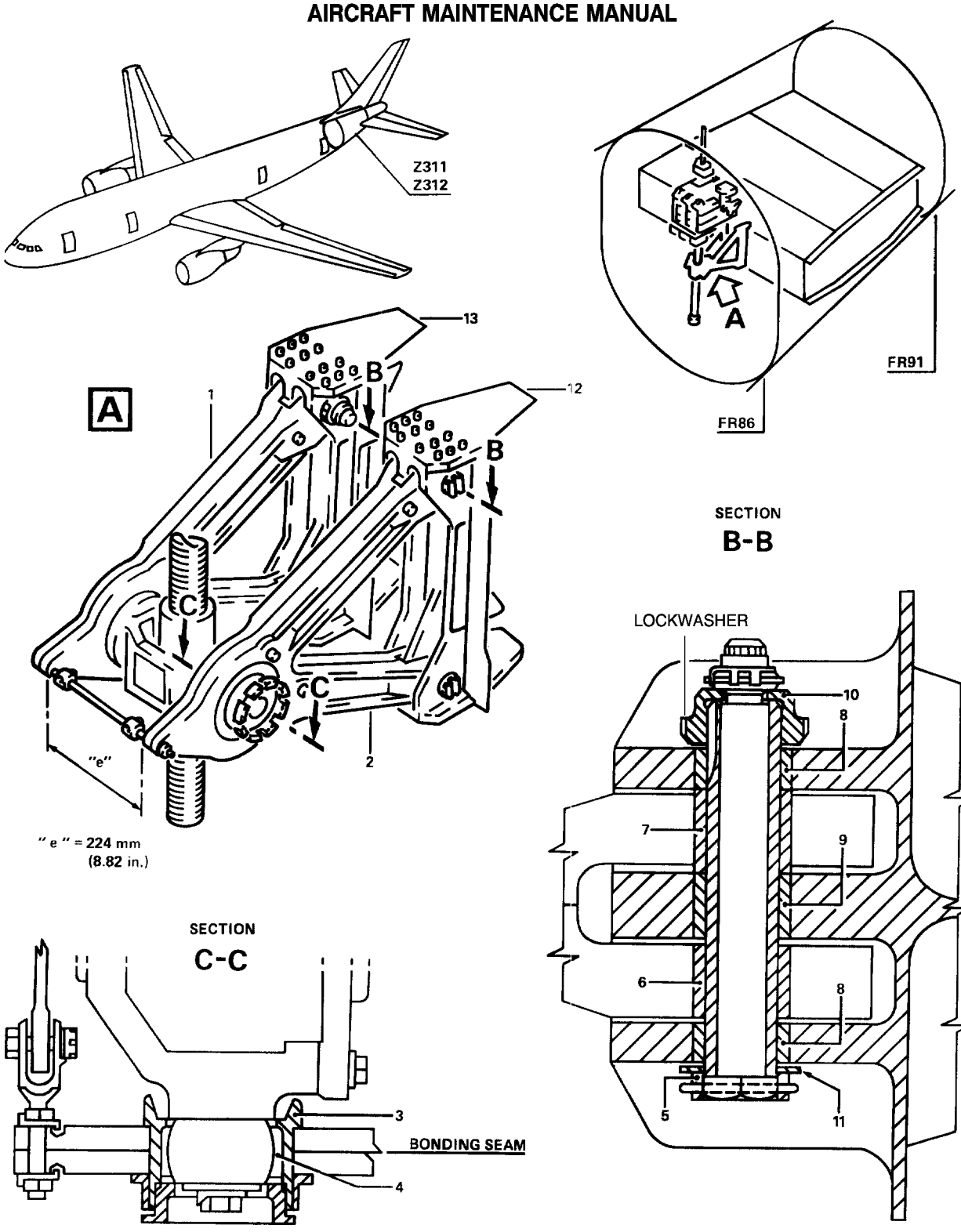
P. Block 501).

F. Close-Up

(1)Make sure that the work area is clean and clear of tools and other items.
(2)Apply the water-repellent protective coating (Mat. No. 05-027) thinly to all surfaces of the actuator arms, (1) and (2), and the attach fittings, (12) and (113). (Ref. 51-75-10, P. Block 801).
(4)Close the access door 312AR.
(5)Remove the access platform.
(6)Remove the warning notices.



THS Actuator Arms
Figure 601



THS Actuator Arms
Figure 602

HORIZONTAL STABILIZER SUPPORT FITTINGS - REMOVAL/INSTALLATION

WARNING : (REF. 55-00-00, P. Block 301).
WARNING : SOLVENT (Material No. 11-003) IS DANGEROUS.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms 6 m (20 ft.) and 8 m (26 ft.)
B. 0U190358	Tool - 0° Location, THS Actuator
C. 0U190359	Screw - Fixing 0° Tool P/N 0U190358
D. 0U190360	Rigging Pin - THS Actuator Mechanical Input Lever
E. 97A27302009000	Locking Equipment - Pitch Trim Control Wheel
F. 98A27901006000	Rigging Pin - Rudder Control (Qty 2)
G. 98A27901007000	Rigging Pin - Elevator Control (Qty 2)
H.	Nonmetallic Scraper
J.	Warning Notices
K.	Torque Wrench Up to 4 daN.m (29.5 lbf. ft.)
L.	Cotter Pins
M. Material No. 04-004	Common Greases (Ref. 20-31-00)
N. Material No. 05-005	Special Materials (Ref. 20-31-00)
P. Material No. 09-005	Sealants (Ref. 20-31-00)
Q. Material No. 11-003	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Replenishing - Hydraulics
- 20-28-11, P. Block 1	Electrical Bonding
- 27-41-00, P. Block 501	Trimmable Horizontal Stabilizer Control
- 29-10-00, P. Block 301	Main Hydraulic Power
- 51-23-10, P. Block 801	Paint Coatings
- 53-10-88, P. Block 401	Fuselage Aft Section Fittings-Horizontal Stabilizer
- 55-13-13, P. Block 401	Panels - Trailing Edge Access

2. Procedure

A. Job Set-Up
(1)Position access platforms.
(2)Make certain that horizontal stabilizer pitch trim control is set at zero and install locking equipment P/N 97A27302009000 at pitch trim control wheel in flight compartment.
(3)Make certain that elevator controls are set at neutral and install rigging pins P/N 98A27901007000 (Qty. 2) in elevator control bellcranks on control mechanism mounting beam in avionics compartment.
(4)Make certain that rudder pedals are set at neutral and install rigging pins P/N 98A27901006000 (Qty. 2) in rudder control bellcrank on control mechanism mouting beam in avionics compartment.
(5)Make certain that rudder and aileron trim control wheels are set at zero.
(6)Open access doors 313AL and 312AR.
(7)Install tool P/N 0U190358 with screw P/N 0U190359 and rigging pin

P/N 0U190360 at horizontal stabilizer hydromechanical actuator.

(8)Display warning notices in flight compartment prohibiting operation of flight controls.

(9)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
21VU	AFS FAC 1/28VDC	306CC1	103/G03
21VU	AFS FAC 1/115VAC	309CC1	103/G05
21VU	AFS FAC 1/26VAC	305CC1	103/G07
21VU	AFS FAC 2/26VAC	305CC2	103/G08
21VU	AFS FAC 2/115VAC	309CC2	103/G10
21VU	AFS FAC 2/28VDC	306CC2	103/G12
127VU	FLT CTL/SERVO CTL THS/HYDSEL	1CB	701/R64
127VU	FLT CTL/AIL TRIM	3CG	701/R67

(10)Remove horizontal stabilizer trailing edge access panels 334AT and 344AT (Ref. 55-13-13, P. Block 401).

(11)Depressurize hydraulic systems (Ref. 29-10-00, P. Block 301).

B. Removal (Ref. Fig. 401)

(1)Remove the fulesage Aft Section Fittings-horizontal stabilizer (Ref. 53-10-88, P. Block 401).

NOTE : To make installation easier, note the positions of the bonding straps (7).

(2)Remove nuts (10), bonding straps (7) (Ref. 20-28-11, P. Block 1), bolts (8) and washers (9).

NOTE : To make installation easier, note the position of bushings (5) and bolts(6).

(3)Remove and discard cotter pins (1), remove nuts (2), washers (3) cup washers (4), bolts(6), flanged bushings (5) and remove support fittings (11).

C. Preparation for Installation

(1)Remove old sealant from mating surfaces of support fittings and horizontal stabilizer rear spar using a nonmetallic scraper.

WARNING : SOLVENT (Material No. 11-003) IS DANGEROUS.

(2)Clean bolts (6, 8) and bushings (5) with cleaning agent (Material No. 11-003).

(3)Apply grease (Material No. 04-004) to bolts (6, 8) and bushings (5).

(4)Apply sealant (Material No. 09-005) to mating surfaces of support fittings (11) and horizontal stabilizer rear spar.

D. Installation

(1)Install bushings (5), position support fittings (11) and install bolts (6).

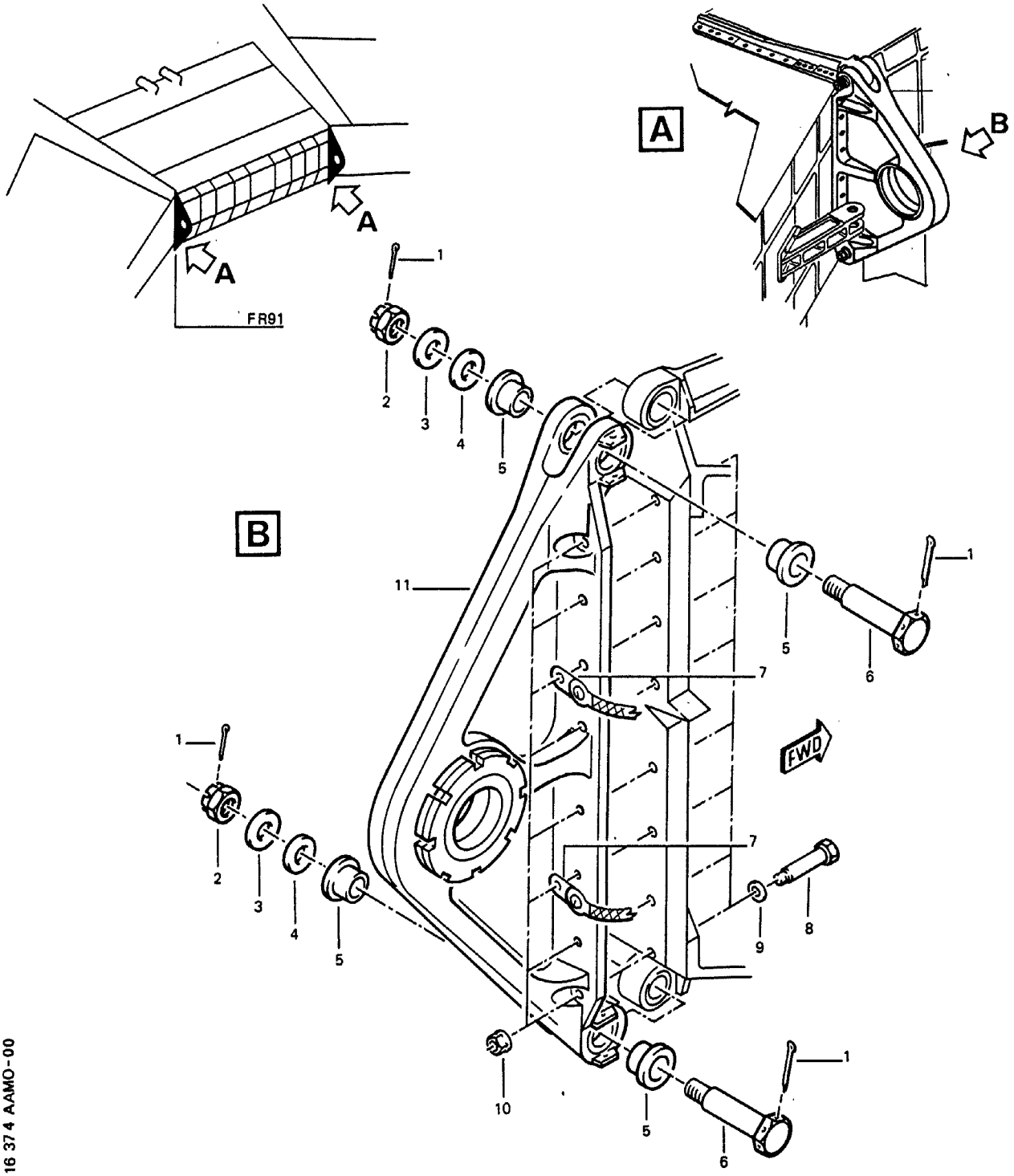
(2)Install cup washers (4) so that concave surface faces support fittings (11), then washers (3) and nuts (2).

(3)TORQUE nuts (2) to between 2.87 and 3.51 daN.m (21.2 and 25.9 lbf./ft) and safety nuts (2) and heads of bolts (6) with cotter pins (1).

(4)Install bolts (8), washers (9) bonding straps (7) and nuts (10). Make certain of correct location of bonding straps (7) (Ref. 20-28-11, P. Block 1).
(5)TORQUE nuts (10) to between 2.6 mdaN and 3 mdaN(19.2 and 22.1 lbf/ft)
(6)Remove tool P/N 0U190358 and screw P/N 0U190359 and rigging pin P/N 0U190360.
(7)Install the Fuselage Aft Section Fittings-horizontal stabilizer. (Ref. 53-10-88, P.Block 401).
(8)Remove locking equipment P/N 97A27302009000.
(9)Remove rigging pins P/N 98A27901007000 (Qty. 2) and P/N 98A27901006000 (Qty. 2).
(8)Remove safety clips and tags, and close circuit breakers 306CC1, 309CC1, 305CC1, 309CC2, 306CC2, 305CC2, 1CB and 3CG.

E. Test
(1)Carry out operational/functional test of trimmable horizontal stabilizer (Ref. 27-41-00, P. Block 501).

F. Close-Up
(1)Make certain that work area is clean and clear of tools and miscellaneous items of equipment.
(2)Apply water-repellent protective coating (Material No. 05-005B) thinly to installed support fittings (Ref. 51-23-10, P. Block 801).
(3)Close access doors 313AL and 312AR.
(4)Install horizontal stabilizer trailing edge access panels 334AT and 344AT (Ref. 55-13-13, P. Block 401).
(5)Remove warning notices.
(6)Make certain that hydraulic systems are replenished (Ref. 12-12-29, P. Block 1).
(7)Pressurize hydraulic systems (Ref. 29-10-00, P. Block 401).
(8)Remove access platforms.



Support Fittings on Horizontal Stabilizers
Figure 401

HORIZONTAL STABILIZER SUPPORT BEARINGS - REMOVAL/INSTALLATION

WARNING : (REF. 55-00-00, P. Block 301).

NOTE : The LH and RH self-aligning bearing assemblies are identical in design and function but are opposite hand. The LH self-aligning bearing assembly only is described and illustrated.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 8 m (26 ft.)
B. 97A27302009000	Locking Equipment
C. 98A27407508001	Tool Set Removal/Installation Horizontal Stabilizer Bearings
D. 98A27407569000	Bolt - Extractor, Horizontal Stabilizer Bearings
E. 98A27901007000	Pin - Rigging, Elevator Control Bellcranks
F.	Warning Notices
G.	Circuit Breaker Safety Clips
H.	Torque Wrench 10 m.daN (74 lbf. ft.)
J. Material No. 05-002	Special Materials (Ref. 20-31-00)
K. Material No. 09-005	Sealants (Ref. 20-31-00)
R L. Material No. 09-016	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power
- 55-16-11, P. Block 401	Attach Fittings - Horizontal Stabilizer
- 55-13-11, P. Block 401	Trailing Edge - Trimmable Horizontal Stabilizer
- 55-13-13, P. Block 401	Panels - Trailing Edge Access
- 55-15-11, P. Block 401	Apron - Trimmable Horizontal Stabilizer
- 55-16-37, P. Block 401	Fittings - Support
- 55-24-11, P. Block 401	Tips and Inboard End Caps - Elevator

2. Procedure

A. Job Set-Up
(1)Position access platform.
(2)Make certain that horizontal stabilizer pitch trim control is set at zero and install locking equipment P/N 97A27302009000 at pitch trim control wheel in flight compartment.
(3)Make certain that elevator controls are set at neutral and install rigging pins P/N 98A27901007000 in elevator control bellcranks on control mechanism mounting beam in avionics compartment.
(4)Display warning notices in flight compartment prohibiting operation of flight controls.
(5)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
21VU	AFS FAC 1/28VDC	306CC1	103/G03
21VU	AFS FAC 1/115VAC	309CC1	103/G05
21VU	AFS FAC 1/26VAC	305CC1	103/G07
21VU	AFS FAC 2/26VAC	305CC2	103/G08

PANEL	SERVICE	IDENT.	LOCATION
21VU	AFS FAC 2/115VAC	309CC2	103/G10
21VU	AFS FAC 2/28VDC	306CC2	103/G12
133VU	FLT CTL/SERVO CTL THS/HYDSEL	1CB	332/U63
133VU	FLT CTL/SERVO CTL THS/JAM DET	2CB	332/U64
133VU	FLT CTL/AIL TRIM	3CG	331/V63

(6)Depressurize hydraulic systems (Ref. 29-10-00, P. Block 301).
(7)Make certain that elevators are resting on their lower travel limit stops.
(8)Open access door 313AL to gain access to eyebolts and support struts.
(9)Remove horizontal stabilizer aprons where necessary (Ref. 55-15-11, P. Block 401).
(10)Remove L and R horizontal stabilizer inboard trailing edge access panels (Ref. 55-13-13, P. Block 401).
(11)Remove L and R horizontal stabilizer inboard trailing edge sections (Ref. 55-13-11, P. Block 401).
(12)Remove inboard end caps of elevators (Ref. 55-24-11, P. Block 401).
(13)Remove eye bolts and sleeve (Ref. 53-10-88, P. Block 401).
(14)Remove horizontal stabilizer attach fittings (Ref. 55-10-88, P. Block 401).

B. Removal (Ref. Fig. 401)
(1)Remove self-aligning bearing assembly from horizontal stabilizer support fitting (1).
(a)Remove sealing rings (2, 7) from inboard and outboard sides of bearing assembly.
(b)Release tab washers (4, 9).
(c)Using wrench from tool set P/N 98A27407508001, remove slotted ring nut (3) from inboard side of bearing assembly, and remove tab washer (4).
(d)Using bolt extractor P/N 98A27407569000, remove self-aligning bearing (5) from bearing housing (6).
(e)Using wrench from tool set P/N 98A27407508001, remove slotted ring nut (10) from outboard slide of bearing assembly, and remove tab washer (9).
(f)Withdraw bearing housing (6) from inboard side of support fitting (1).

R **ON A/C 001-003,

C. Preparation for Installation (Ref. Fig. 402)
(1)Inspect support fitting (1) for damage, and remove any burrs or scratches by blending.
NOTE : If damage of distortion exists on bush (8), the support fitting (1) complete with bush (8) must be replaced (Ref. 55-16-37, P. Block 401).
(2)Inspect outer diameter and bore of bearing housing (6) for rubbing marks or scoring, and check outer diameter of bearing housing (6) 102 - 0.012 - 0.034 mm (4.016 - 0.0005 - 0.0013 in.) against bore of bush (8) 102 + 0.0 +0.035 mm (4.016 + 0.0 +0.0014 in.).

NOTE : If damage or distortion exists, bearing housing (6) and/or self-aligning bearing (5) must be replaced.

(3) Apply grease (Material No. 05-002) on bearing and bearing assembly.

R **ON A/C 004-200,

C. Preparation for Installation (Ref. Fig. 402)

(1)Inspect support fitting (1) for damage, and remove any burrs or scratches by blending.

NOTE : If damage of distortion exists on bush (8), the support fitting (1) complete with bush (8) must be replaced (Ref. 55-16-37, P. Block 401).

(2)Inspect outer diameter and bore of bearing housing (6) for rubbing marks or scoring, and check outer diameter of bearing housing (6) 102 - 0.012 - 0.066 mm (4.016 - 0.0005 - 0.0025 in.) against bore of bush (8) 102 + 0.0 +0.035 mm (4.016 + 0.0 +0.0014 in.).

NOTE : If damage or distortion exists, bearing housing (6) and/or self-aligning bearing (5) must be replaced.

(3) Apply grease (Material No. 05-002) on bearing and bearing assembly.

**ON A/C ALL

D. Installation (Ref. Fig. 401, 402).

(1)Install self-aligning bearing assembly in support fitting (1).

(a)Apply grease (Material No. 05-002)on the outside of the bearing housing (6).

(b)Install bearing housing (6) with shouldered end at inboard side of support fitting (1).

(c)Install new tab washer (9) making certain that inner tab is correctly located in slot in bearing housing (6).

(d)Install slotted ring nut (10) and TORQUE to 10 m.daN (73.8 lbf. ft.) +0.5 m.daN (3.69 lbf.ft) -1 m.daN (7.38 lbf.ft) using wrench from tool set P/N 98A27407508001 safety with tab washer (9).

(e)Install self-aligning bearing (5) in bearing housing (6), with sealing side of bearing facing inboard.

(f)Install new tab washer (4).

(g)Install slotted ring nut (3) and TORQUE to 10 m.daN (73.8 lbf. ft.). +0.5 m.daN (3.69 lbf.ft) -1 m.daN (7.38 lbf.ft) Safety with tab washer (4).

(h)Install new sealing rings (2, 7) on each side of bearing assembly.

(j)Apply sealant (Material No. 09-016) on each side of bearing assembly.

E. Close-Up

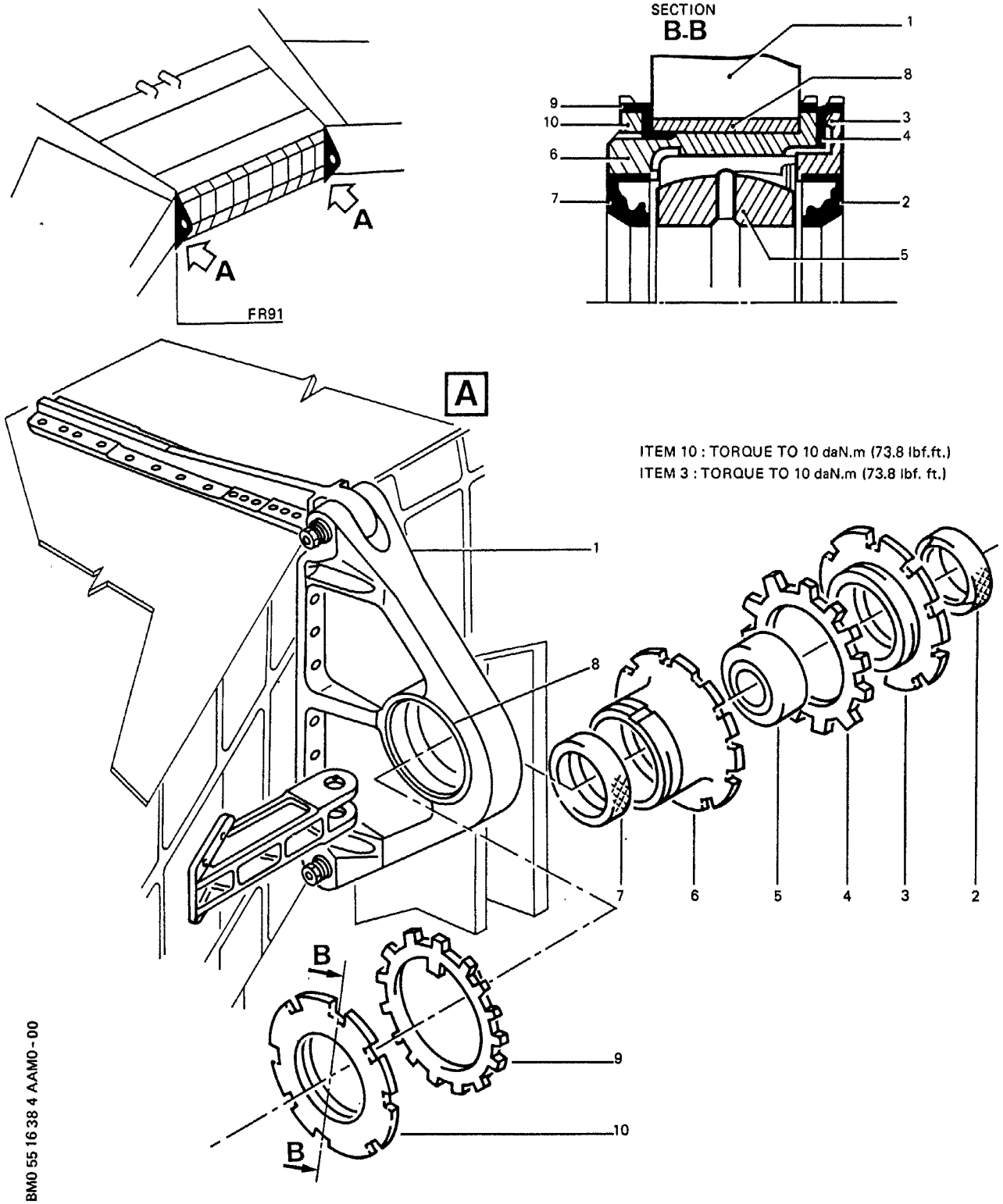
(1)Swing horizontal stabilizer attach fitting upwards into position and install upper attach bolt (Ref. 55-10-88, P. Block 401).

(2)Install sleeve and eye bolts (Ref. 55-10-88, P. Block 401).

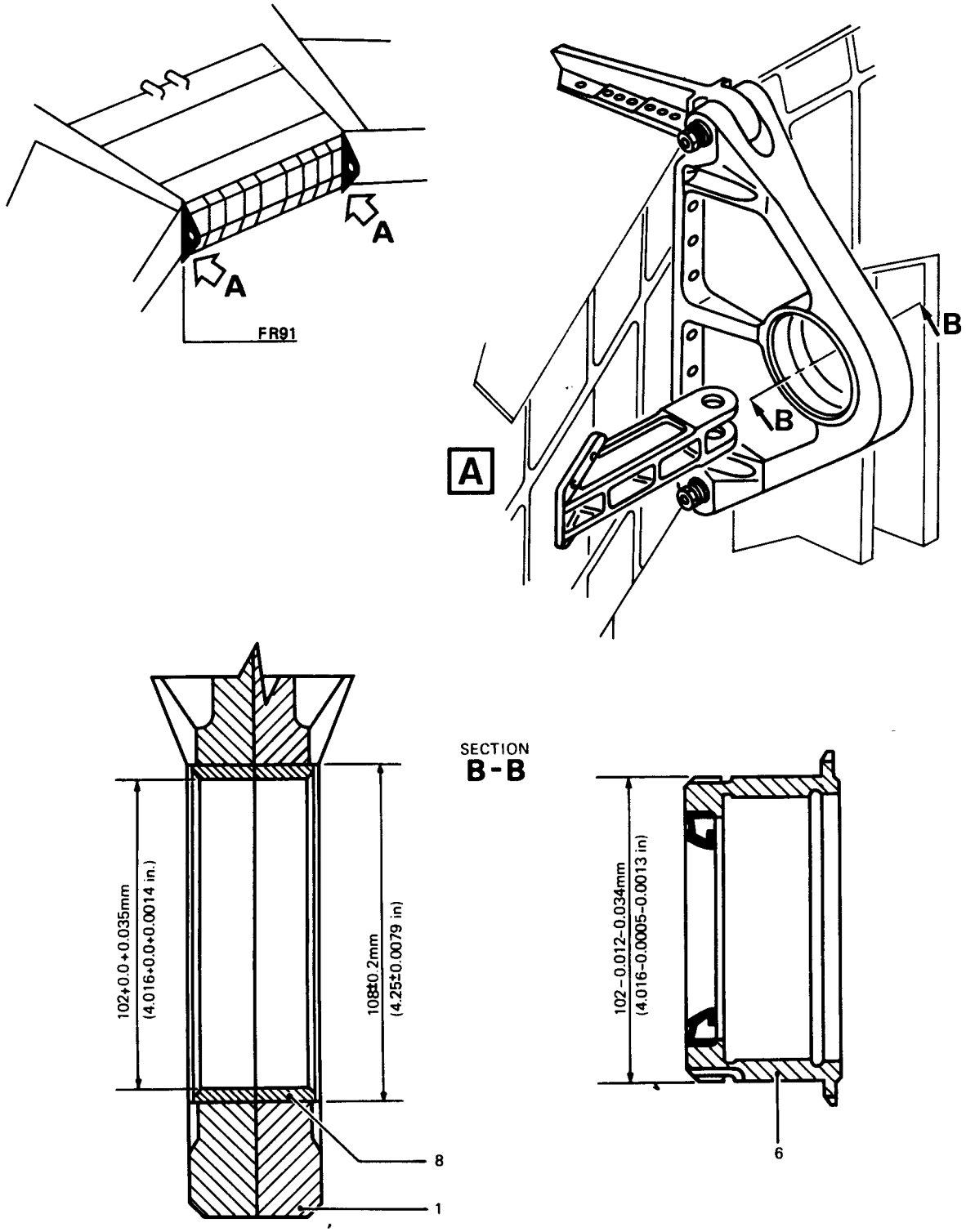
(3)Install elevator inboard end cap (Ref. 55-24-11, P. Block 401).

(4)Install horizontal stabilizer trailing edge sections (Ref. 55-13-11, P. Block 401).

(5)Install horizontal stabilizer trailing edge access panels (Ref. 55-13-13, P. Block 401).
(6)Install horizontal stabilizer aprons (Ref. 55-15-11, P. Block 401).
(7)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(8)Remove safety clips and tags and close circuit breakers 306CC1, 309CC1, 305CC1, 305CC2, 309CC2, 306CC2, 1CB, 2CB and 3CG.
(9)Pressurize hydraulic systems (Ref. 29-10-00, P. Block 301).
(10)Remove rigging pins P/N98A27901007000.
(11)Remove locking equipment P/N 97A27302009000.
(12)Remove warning notices.
(13)Remove access platform.



Horizontal Stabilizer Support Bearing Assembly
Figure 401



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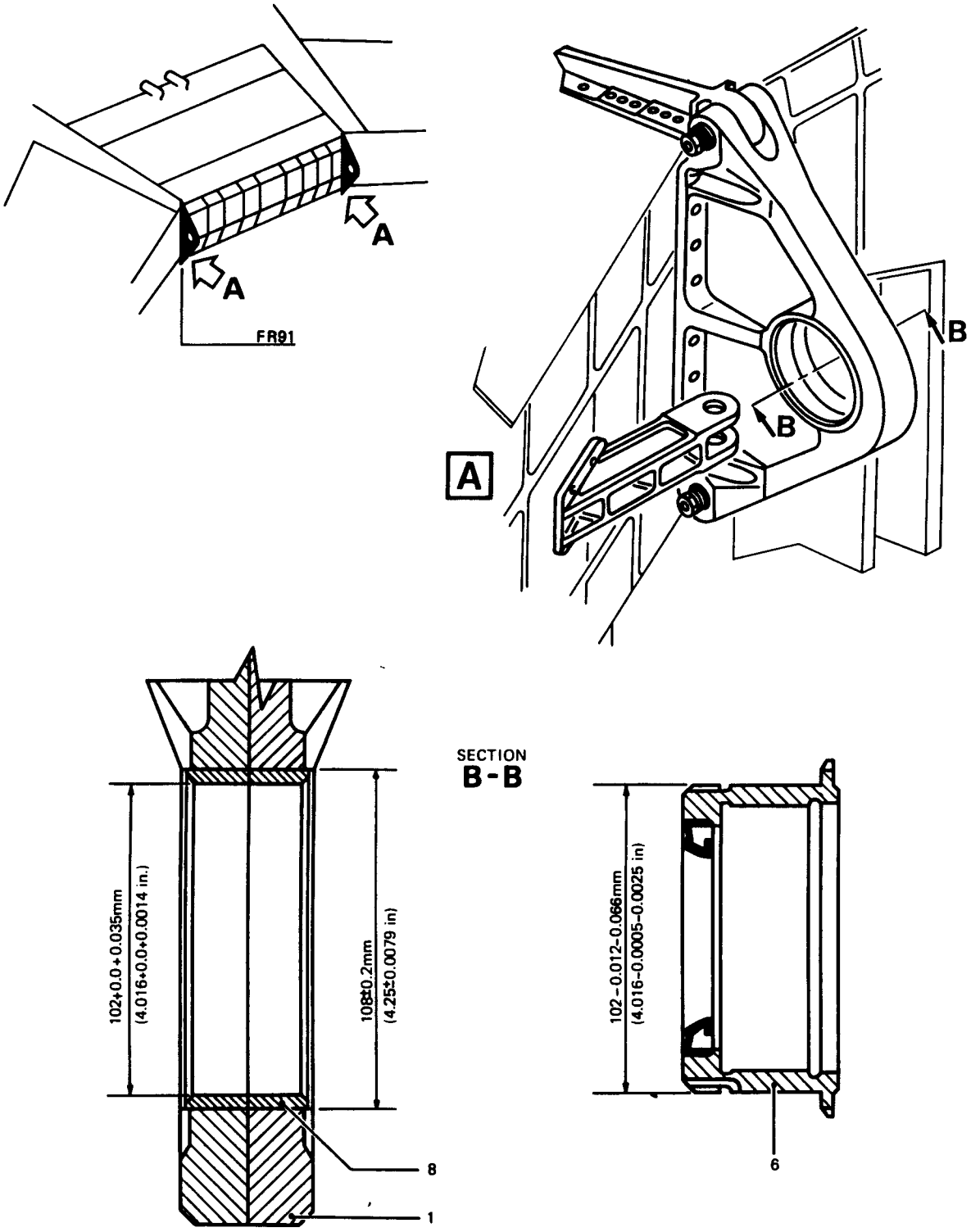
Horizontal Stabilizer Support Bearing Tolerances
Figure 402



Horizontal Stabilizer Support Bearing Tolerances
Figure 402

ELEVATOR HINGE ARMS No. 1 AND 7 - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION : MAKE CERTAIN THAT HINGE ARMS ARE SUITABLY PROTECTED DURING REMOVAL/INSTALLATION TO AVOID DAMAGE TO SURFACE PROTECTION.

NOTE : SHUR-LOK and STA-LOK locking systems are interchangeable.

1. Equipment and Materials

	ITEM	DESIGNATION
	A.	Access Platform, up to 8 m (26 ft.)
	B. 98A27303002000	Centering Bullets and Pins - Elevator Hinge Pins
	C. 98A27408018000	Socket Wrench Set - Elevator Bearings
	D. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK
	E. SL90.315-.3750	Wrenches - Notched, Tightening of Nuts NSA5454 (for STA-LOK Locking System)
R	F. SL90.314-.3750	Tool - Extraction, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
	G. SL90.359-.3750	Tool - Installation, Tab Washers
R	SL90.313-.3750	STA-LOK NSA5454 (for STA-LOK Locking System)
	H.	Elevator Support
	J.	Torque Wrench, up to 1.0 m.daN (88.5 lbf.in.)
	K.	Cotter Pins
	L.	Lockwashers
	M. Material No. 04-004	Common Greases (Ref. 20-31-00)
	N. Material No. 05-005	Special Materials (Ref. 20-31-00)
	P. Material No. 05-027	Special Materials (Ref. 20-31-00)
	Q. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

- 20-28-11, P. Block 1	Electrical Bonding
- 27-31-00, P. Block 501	Mechanical Control and Pitch Uncoupling
- 27-31-22, P. Block 401	THS Bellcranks
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
- 55-13-13, P. Block 401	Trailing Edge Access Panels
- 55-22-13, P. Block 401	Leading Edge Access Panels

A. Job Set-Up
(1)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove or open horizontal stabilizer trailing edge access panels as required (Ref. 55-13-13, P. Block 401).
(4)Remove or open elevator leading edge access panels as required (Ref. 55-22-13, P. Block 401).
(5)Raise elevator by hand to approximately neutral position and place suitable support under elevator to prevent droop.

** ON ELEVATOR WITH SHUR-LOK LOCKING SYSTEM (NSA 5063)

B. Removal
NOTE : Use SHUR-LOK tool set P/N 98A27907509000 to remove lockwashers (21, 48).
NOTE : Use groove nut wrenches from tool set P/N 98A27408018000 to remove ring nuts (22, 47).
NOTE : During removal, record location of each item to ensure correct installation.
(1)If hinge arm No. 1 is to be removed, remove bellcrank, control rods and bellcrank supports as follows (Ref. Fig. 401):
(a)Remove bellcrank and control rods at RIB4 (Ref. 27-31-22, P. Block 401).
(b)Remove cotter pins (5), nuts (6), washers (2), bolts (1, 3) and supports (4).
(2)Remove hinge arms as follows (Ref. Fig. 402):
(a)Remove nuts (34), bolts (37), washers (36) and bonding straps (35) from hinge arm (33).
(b)Remove cotter pins (29, 40), lockwashers (21, 48), ring nuts (22, 47), washers (23, 46) and remove bolts (32, 38) from sleeves (31, 39).
(c)Release tabs of lockwashers (26, 43) and remove ring nuts (25, 44), lockwashers (26, 43), sleeves (31, 39), washer (30), hinge arm (33) and bushes (27, 28, 41, 42).
(d)Remove circlips (24, 45) from sleeves (31, 39).

** ON ELEVATOR WITH STA-LOK LOCKING SYSTEM (NSA 5454)

B. Removal
NOTE : During removal, record location of each item to ensure correct installation.
(1)If hinge arm No. 1 is to be removed, remove bellcrank, control rods and bellcrank supports (Ref. Fig. 401):
(a)Remove bellcrank and control rods at RIB4 (Ref. 27-31-22, P. Block 401).
(b)Remove cotter pins (5), nuts (6), washers (2), bolts (1, 3) and supports (4).
(2)Remove hinge arms (Ref. Fig. 402):
(a)Remove nuts (34), bolts (37), washers (36) and bonding straps (35) from hinge arm (33).

(b)Remove cotter pins (29, 40) and remove retaining ring (51, 78) using STA-LOK extractor P/N SL90.314-.3750.
(c)Remove ring nuts (52, 77) using notched wrench P/N SL90.315-.3750.
(d)Remove washers (23, 46) and remove bolts (32, 38) from sleeves (31, 39).
(e)Release tabs of lockwashers (26, 43) and remove ring nuts (25, 44), lockwashers (26, 43), sleeves (31, 39), washer (30), hinge arm (33) and bushes (27, 28, 41, 42).
(f)Remove circlips (24, 45) from sleeves (31, 39).

** ON ALL ELEVATORS

C. Preparation for Installation
(1)Clean all items with cleaning agent (Mat. No. 11-004).
(2)Make certain that hinge arms are free from damage.
(3)Make certain that sealant beads around bushes of hinge arm lugs are in good condition and renew if necessary.
CAUTION : MAKE CERTAIN THAT SELF-LUBRICATING BEARINGS ARE NOT CONTAMINATED WITH GREASE.
(4)Treat all hinge arm bushes and bolts with grease (Mat. No. 04-004) except bolts (37).
(5)Make certain that bonding straps are serviceable, renew if necessary (Ref. 20-28-11, P. Block 1).

** ON ELEVATOR WITH SHUR-LOK LOCKING SYSTEM

D. Installation (Ref. Fig. 402)
NOTE : Use centering bullets and pins P/N 98A27303002000 to install elevator hinge arm bolts.
NOTE : Use socket wrench set P/N 98A27408018000 to tighten ring nuts.
NOTE : Use SHUR-LOK tool set P/N 98A27907509000 to install lockwashers.
(1)Install bushes (27, 28, 41, 42) and install circlips (24, 45) inside sleeves (31, 39).
(2)Position hinge arm (33) and install sleeves (31, 39), washer (30), lockwashers (26, 43) and ring nuts (25, 44).
(3)TORQUE ring nuts (25, 44) to between 0.44 and 0.54 m.daN (39.1 and 47.75 lbf.in.) and safety with lockwashers (26, 43).
(4)Install bolts (32, 38), washers (23, 46) and ring nuts (22, 47).
(5)TORQUE ring nuts (22, 47) to between 0.44 and 0.54 m.daN (39.1 and 47.75 lbf.in.) and safety with lockwashers (21, 48).
(6)Install cotter pins (29, 40).
(7)Install bonding straps (35), washers (36), bolts (37) and nuts (34) on hinge arm (33). For electrical bonding, refer to 20-28-11, P. Block 1.
(8)Install supports at hinge arm No. 1 as follows (Ref. Fig. 401):
(a)Apply grease (Mat. No. 04-004) to contact surfaces of support (4) and rear spar except bonding point.
(b)Position support (4) and install bolts (1, 3), washers (2), nuts (6) and cotter pins (5). For electrical bonding refer to 20-28-11, P. Block 1.
NOTE : The longer bolts (3) are to be installed in the lower pair of holes in lower support (4) and the upper pair of holes in

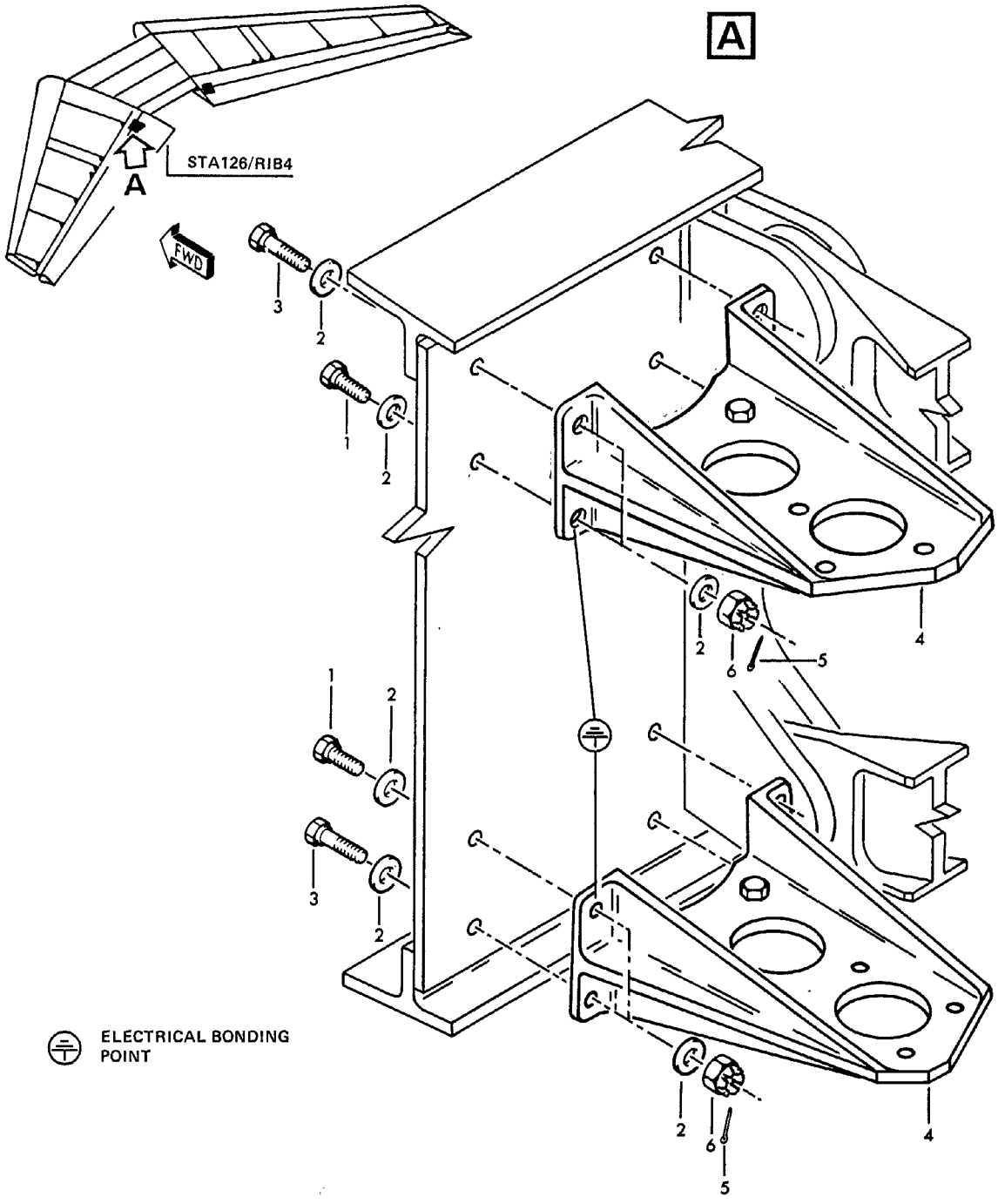
upper support (4).
(c)Install bellcrank and control rods (Ref. 27-31-22, P. Block 401).
(9)Remove elevator support clear of elevator travel range.

** ON ELEVATOR WITH STA-LOK LOCKING SYSTEM

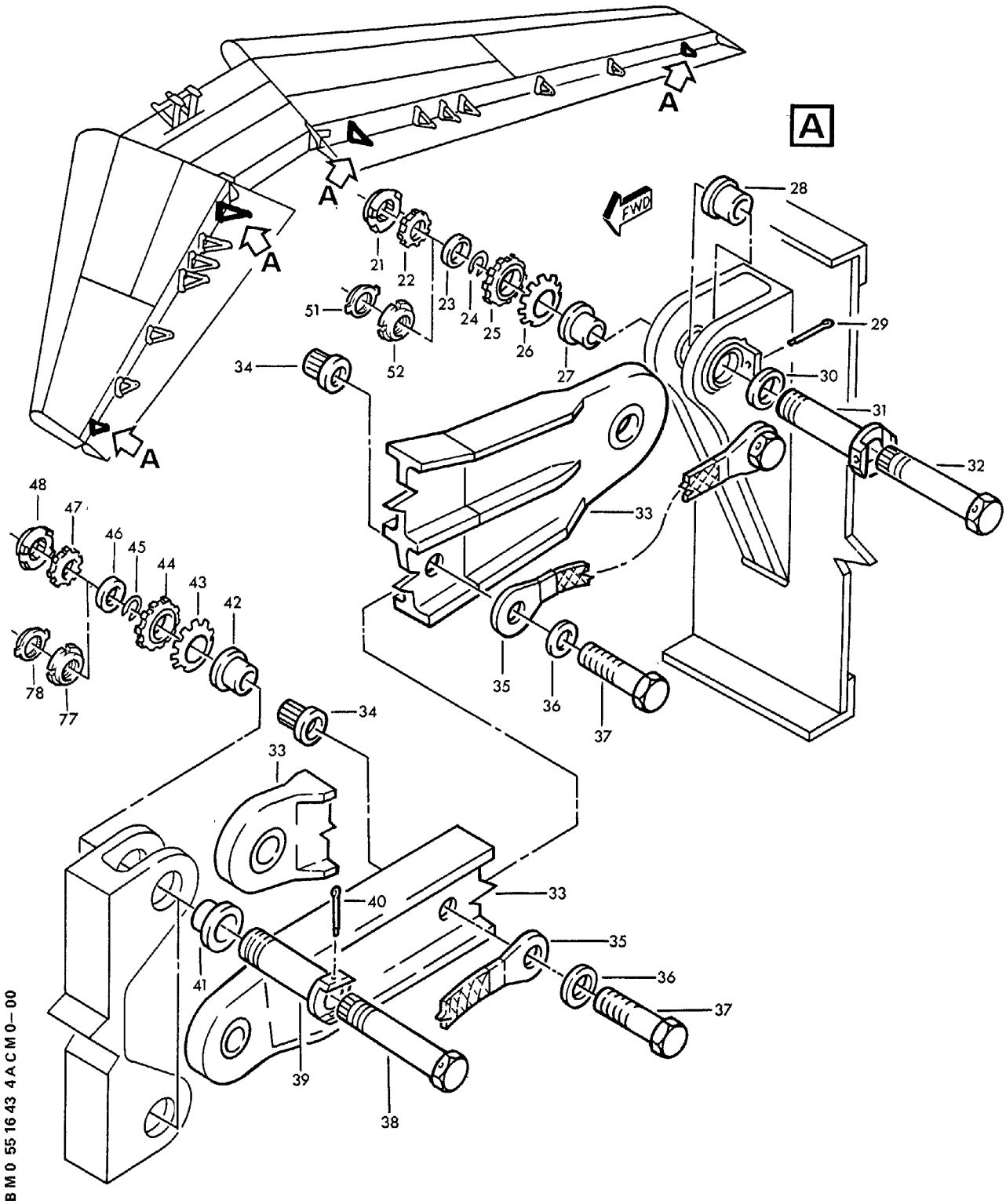
D. Installation (Ref. Fig. 402)
NOTE : Use centering bullets and pins P/N 98A27303002000 to install elevator hinge arm bolts.
(1)Install bushes (27, 28, 41, 42) and install circlips (24, 45) inside sleeves (31, 39).
(2)Position hinge arm (33) and install sleeves (31, 39), washer (30), lockwashers (26, 43) and ring nuts (25, 44).
(3)TORQUE ring nuts (25, 44) to between 0.44 and 0.54 m.daN (39.1 and 47.75 lbf.in.) and safety with lockwashers (26, 43).
(4)Install bolts (32, 38), washers (23, 46) and ring nuts (52, 77).
(5)TORQUE ring nuts (52, 77) to between 0.44 and 0.54 m.daN (39.1 and 47.75 lbf.in.) using notched wrench P/N SL90.315-.3750.
(6)Install retaining rings (51, 78) using STA-LOK tab washer installation tool P/N SL90.359-.3750 or tool PN SL90.313-.3750.
(7)Install cotter pins (29, 40).
(8)Install bonding straps (35), washers (36), bolts (37) and nuts (34) on hinge arm (33). For electrical bonding, refer to 20-28-11, P. Block 1.
(9)Install supports as follows (Ref. Fig. 401):
(a)Apply grease (Mat. No. 04-004) to contact surfaces of support (4) and rear spar except bonding point.
(b)Position supports (4) and install bolts (1, 3), washers (2), nuts (6) and cotter pins (5). For electrical bonding refer to 20-28-11, P. Block 1.
NOTE : The longer bolts (3) are to be installed in the lower pair of holes in lower support (4) and the upper pair of holes in upper support (4).
(c)Install bellcrank and control rods (Ref. 27-31-22, P. Block 401).
(10)Remove elevator support clear of elevator travel range.

E. Test
(1)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of elevator mechanical control (Ref. 27-31-00, P. Block 501).
(3)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Apply corrosion-preventive compound (Mat. No. 05-005) using a brush to visible cadmium-plated items (Ref. 51-75-10, P. Block 801).
(3)Apply moisture-removing oil (Mat. No. 05-027) and corrosion-preventive compound (Mat. No. 05-005) thinly to hinge arms.
(Ref. 51-75-10, P. Block 801).
(4)Install leading edge access panels (Ref. 55-22-13, P. Block 401).
(5)Install or close trailing edge access panels (Ref. 55-13-13, P. Block 401).
(6)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 401).
(7)Remove access platform.



Bellcrank Supports
Figure 401



Hinge Arms No. 1 and 7
Figure 402

ELEVATOR HINGE ARMS NO. 2, 3 AND 4 - REMOVAL/INSTALLATION

WARNING: STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION: MAKE SURE THAT THE HINGE ARMS ARE SUFFICIENTLY PROTECTED DURING REMOVAL/INSTALLATION TO AVOID DAMAGE TO THE SURFACE PROTECTION.

R NOTE: SHUR-LOK and STA-LOK locking systems are interchangeable

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, up to 8 m (26 ft.)
B. 98A27303002000	Centering Bullets and Pins - Elevator Hinge Pins
D. 98A27408018000	Socket Wrench Set - Elevator Bearings
E. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK
R	(for SHUR-LOK locking System)
F.	Elevator Support
G.	Torque Wrench, up to 1.0 m.daN (88.5 lbf.in.)
H.	Torque Wrench, up to 5.0 m.daN (36.9 lbf.ft.)
J.	Cotter Pins
K.	Lockwashers
L. Material No. 04-004	Common Greases (Ref. 20-31-00)
M. Material No. 05-005	Special Materials (Ref. 20-31-00)
N. Material No. 05-027	Special Materials (Ref. 20-31-00)
P. Material No. 09-002	Sealants (Ref. 20-31-00)
Q. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
R R. SL90.313-.5625	Tool - Installatiion, Tab Washers STA-LOK
R	NSA5454 (for STA-LOK locking System)
R S. SL90.314-.5625	Tool - Extraction, Tab Washers STA-LOK
R	NSA5454 (for STA-LOK locking System)
R T. SL90.322-.5625	Wrenches - Notched, Tightening of Nuts
R	NSA5454 (for STA-LOK locking System)

Referenced Procedures

- 20-28-11, P. Block 1	Electrical Bonding
- 27-31-00, P. Block 501	Mechanical Control and Pitch Uncoupling
- 27-31-22, P. Block 401	THS Bellcranks
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-13-13, P. Block 401	Trailing Edge Access Panels
- 55-16-48, P. Block 401	Elevator Support Struts
- 55-22-13, P. Block 401	Leading Edge Access Panels

2. Procedure

A. Job Set-Up
(1)Make the horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(2)Position the access platform.
(3)Remove or open the horizontal-stabilizer trailing-edge access-panels as required (Ref. 55-13-13, P. Block 401).
(4)Remove or open the elevator leading-edge access-panels as required (Ref. 55-22-13, P. Block 401).
(5)Raise the elevator by hand to approximately neutral position and place the applicable support under elevator to prevent droop.

R ** ON ELEVATOR WITH SHUR-LOK LOCKING SYSTEM
B. Removal
NOTE: Use the SHUR-LOK tool set P/N 27907509000 to remove lockwashers.
NOTE: Use the groove nut wrenches from tool set P/N 98A27408018000 to remove ring nuts.
NOTE: During removal, record location of each item to ensure the correct installation.
(1)Remove the control rods and bellcranks as required (Ref. 27-31-22, P. Block 401).
(2)Remove the hydraulic pipeline clamps from hinge arms as follows:
(Ref. Fig. 401)
(a)Remove the nuts (11) and bolts (18) from the brackets (17) at hinge-arms no. 2, LH and RH, and at no. 4 RH.
(b)Remove the cotter pins (21), nuts (20), washers (10), bolts (9), plate (19) and support (8) from hinge arm.
(3)Remove the electrical harnesses, elevator stop and bonding straps as follows:
(Ref. Fig. 401)
(a)Remove the nuts, (2) and (6), bolts, (3) and (7), washers (4), bonding straps (5) and elevator stop (1) as applicable.
(b)Remove the nut (16), washer (14), bolt (15), cable clip (13) and spacer (12).
R (4)Remove the hinge-arm no. 2 LH and no. 4 RH as follows:
R (Ref. Fig. 402)
R (a)Remove the cotter pins, (32) and (39).
R (b)Remove the lockwashers, (36) and (44), ring nuts, (35) and (43), washers, (34) and (42), bolts, (30) and (38), hinge arm (37) and bushes, (31), (33), (40) and (41).
R (5)Remove the hinge-arm no. 4 LH and no. 2 RH as follows:
R (Ref. Fig. 403)
R (a)Remove the cotter pins, (52) and (59).
R (b)Remove the lockwashers, (56) and (64), ring nuts, (55) and (63), washers, (54) and (62), bolts, (50) and (58), hinge arm (57) and bushes, (51), (53), (60), and (65).
R (6)Remove the hinge-arm no. 3 as follows:
R (Ref. Fig. 404)
R (a)Remove the cotter pins, (73) and (77).
R (b)Remove the lockwashers (81), ring nuts (80), washers (79), bolts

R (71) and (75), bush (74), hinge arm (82) and bushes, (72), (76)
R and (78).

R ** ON ELEVATOR WITH STA-LOK LOCKING SYSTEM
R B. Removal
R NOTE: During removal, record location of each item to ensure
R the correct installation.
R (1)Remove the hinge-arm no. 2 LH and no. 4 RH as follows:
R (Ref. Fig. 402)
R (a)Remove the cotter pins, (32) and (39).
R (b)Remove the retaining ring, (90) and (92), using STA-LOK extractor
R P/N SL90.314-.5625
R (c)Remove the ring nuts, (89) and (91), using notched wrench P/N
R SL90.322-.5625.
R (d)Remove the washers, (33) and (42), bolts, (30) and (38), hinge
R arm (37) and bushes, (31), (33), (40) and (41).
R (2)Remove the hinge-arm no. 4 LH and no. 2 RH as follows:
R (Ref. Fig. 403)
R (a)Remove the cotter pins, (52) and (59).
R (b)Remove the retaining ring, (86) and (88), using STA-LOK extractor
R P/N SL90.314-.5625
R (c)Remove the ring nuts, (85) and (87), using notched wrench P/N
R SL90.322-.5625.
R (d)Remove the washers, (54) and (62), bolts, (50) and (58), hinge
R arm (57) and bushes, (51), (53) (60) and (65).
R (3)Remove the hinge-arm no. 3 as follows:
R (Ref. Fig. 404)
R (a)Remove the diagonal support strut (Ref. 55-16-48, P. Block 401).
R (b)Remove the cotter pins, (73) and (77).
R (c)Remove the retaining ring (84) using STA-LOK extractor P/N
R SL90.314-.5625
R (d)Remove the ring nuts (83) using notched wrench P/N
R SL90.322-.5625.
R (e)Remove the washers (79), bolts, (71) and (75), bush (74), hinge
R arm (82) and bushes (72), (76) and (78).

R ** ON ALL ELEVATORS
C. Preparation for Installation
(1)Clean all the items with cleaning agent (Mat. No. 11-004).
(2)Make sure that the hinge arms are free from damage.
(3)Make sure that the sealant beads around bushes of hinge arm lugs
are in good condition and repair if necessary.
CAUTION: MAKE SURE THAT THE SELF-LUBRICATING BEARINGS ARE
NOT CONTAMINATED WITH GREASE.
(4)Treat all of the hinge arm bushes and bolts with grease (Mat. No.
04-004).

R ** ON ELEVATOR WITH SHUR-LOK LOCKIMG SYSTEM
D. Installation
NOTE: Use the centering bullets and pins P/N 98A27303002000
to install the elevator hinge-arm bolts.

NOTE: Use the socket wrench set P/N 98A27408018000 to tighten ring nuts.

NOTE: Use the SHUR-LOK tool set P/N 98A27907509000 to install lockwashers.

R (1)Install the hinge-arm no. 3 as follows:
R (Ref. Fig. 404)
R (a)Install the bushes, (72), (76) and (78), position the hinge arm (82) and install the bush (74), bolts, (71) and (75), washers (79) and ring nuts (80).
R (b)TORQUE the ring nuts (80) to between 1.32 and 1.62 m.daN (9.7 and 11.95 lbf.ft.).
R (c)Install the lockwashers (81).
R (d)Install the cotter pins, (77) and (73).
R (e)Install the diagonal support strut (Ref. 55-16-48, P. Block 401).
R (2)Install the hinge-arm no. 4 LH and no. 2 RH as follows:
R (Ref. Fig. 403)
R (a)Install the bushes, (51), (53), (60) and (65), position the hinge arm (57), bolts, (50) and (58), washers, (54) and (62) and ring nuts, (55) and (63).
R (b)TORQUE the ring nut (55) to between 2.21 and 2.7 m.daN (16.3 and 20.0 lbf.ft.).
R (c)TORQUE the ring nut (63) to between 1.32 and 1.62 m.daN (9.7 and 11.95 lbf.ft.).
R (d)Install the lockwashers, (56) and (64).
R (e)Install the cotter pins, (52) and (59).
R (3)Install the hinge-arm no. 2 LH and no. 4 RH as follows:
R (Ref. Fig. 402)
R (a)Install the bushes, (31), (33), (40) and (41), position the hinge arm (37), bolts, (30) and (38), washers, (34) and (42), and ring nuts, (35) and (43).
R (b)TORQUE the ring nut (35) to between 2.21 and 2.7 m.daN (16.3 and 20.0 lbf.ft.).
R (c)TORQUE the ring nut (43) to between 1.32 and 1.62 m.daN (9.7 and 11.95 lbf.ft.).
R (d)Install the lockwashers, (36) and (44).
R (e)Install the cotter pins, (32) and (39).

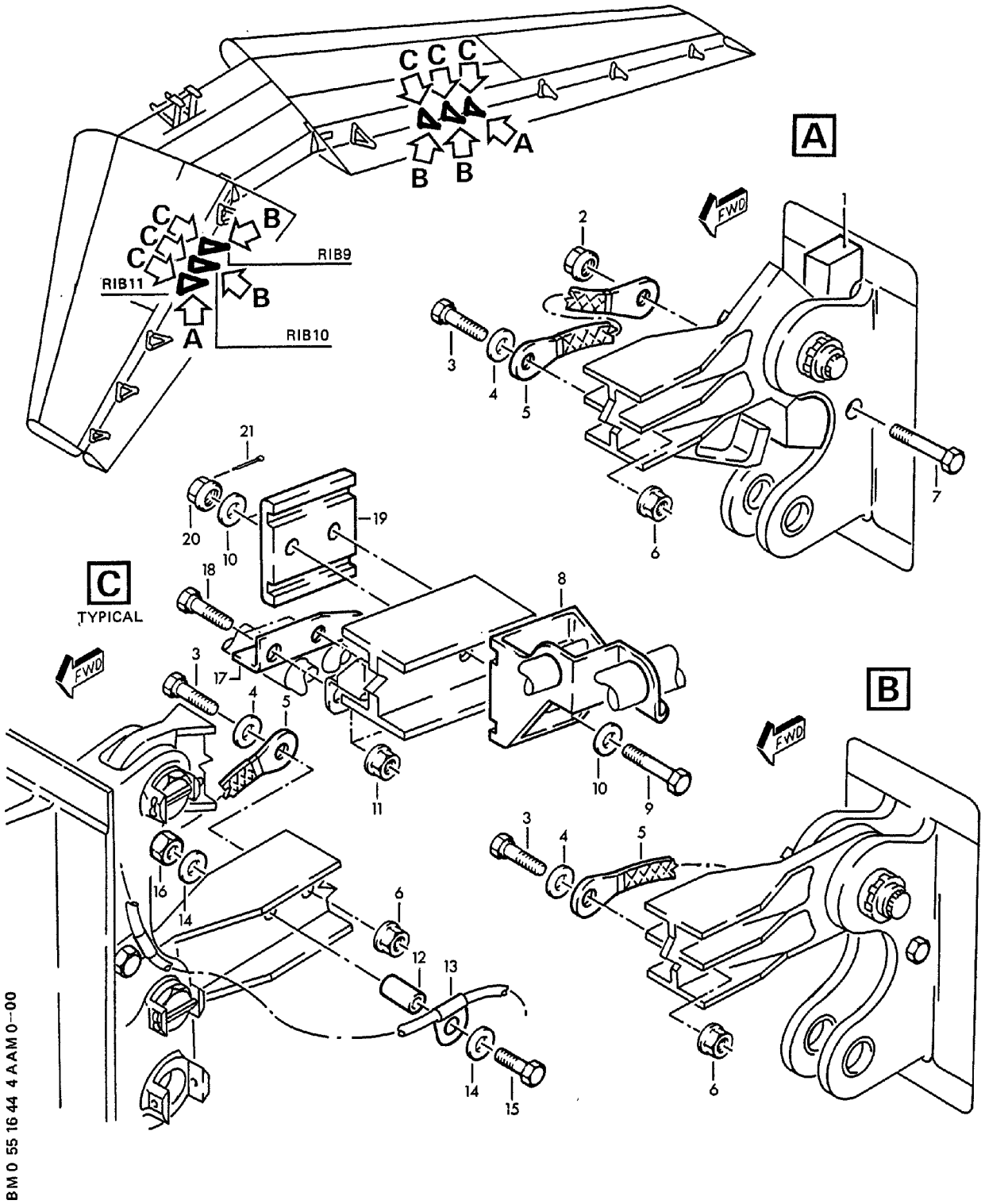
(4)Install the electrical harnesses, elevator stop and bonding straps as follows:
(Ref. Fig. 401)
(a)Position the elevator stop (1) in hinge-arm no. 4 attach-fitting and install the bolt (7), bonding strap, (5) and nut (2). (Ref.20-28-11, P. Block 1).
(b)Install the bolt (15), washers (14), cable clip (13), spacer (12) and nut (16).
(c)Install the bolts (3), washers (4), bonding straps, (5) and nut (6). (Ref. 20-28-11, P. Block 1).
(5)Install the hydraulic pipeline clamps as follows:
(Ref. Fig. 401)
(a)Apply sealant (Mat. No. 09-002) to the grooves in plate (19) and bracket (8).
(b)Install the bracket (8), plate (19), bolts (9), washers (10), and nuts (20).
(c)TORQUE the nuts (20) to between 0.2 and 0.24 m.daN (17.37 and 20.82 lbf.in.).
(d)Install the cotter pins (21).
(e)Instal the bracket (17), nuts (11) and bolts (18) at hinge-arm no. 2, LH and RH, and at no. 4 RH. (Ref. 20-28-11, P. Block 1).
(6)Install the control rods and bellcranks (Ref. 27-31-22, P. Block 401).
(7)Remove the elevator support clear of elevator travel range.

R ** ON ELEVATORS WITH STA-LOK SYSTEM
D. Installation
R NOTE: During removal, record location of each item to ensure
R the correct installation.
R (1)Install the hinge-arm no. 3 as follows:
(Ref. Fig. 404)
R (a)Install the bushes, (72), (76) and (78), position the hinge arm
R (82), bush (74), bolts (71), the washers (79).
R (b)Install the ring nuts (83) using SL90.322-.5625
R (c)TORQUE the ring nuts (83) to between 1.32 and 1.62 m.daN (9.7 and
R 11.95 lbf.in).
R (d)Intall the retaining rings (84) using STA-LOK extractor P/N
R SL90.313-.5625
R (e)Install the cotter pins, (73) and (77).
R (f)Install the diagonal support strut (Ref. 55-16-48, P. Block 401).
R (2)Install the hinge-arm no. 4 LH and no. 2 RH as follows:
R (Ref. Fig. 403)
R (a)Install the bushes, (51), (53), (60) and (65) position the hinge
R arm (57), bolts, (50) and (58) and washers, (54) and (62).
R (b)Install the ring nuts, (85) and (87), using SL90.322-.5625
R (c)TORQUE the ring nut (85) to between 2.21 and 2.7 m.daN (16.3 and
R 20.0 lbf.in).
R (c)TORQUE the ring nut (87) to between 1.32 and 1.62 m.daN (9.7 and
R 11.95 lbf.in).
R (d)Intall the retaining rings, (86) and (88), using STA-LOK extractor
R P/N SL90.314-.5625

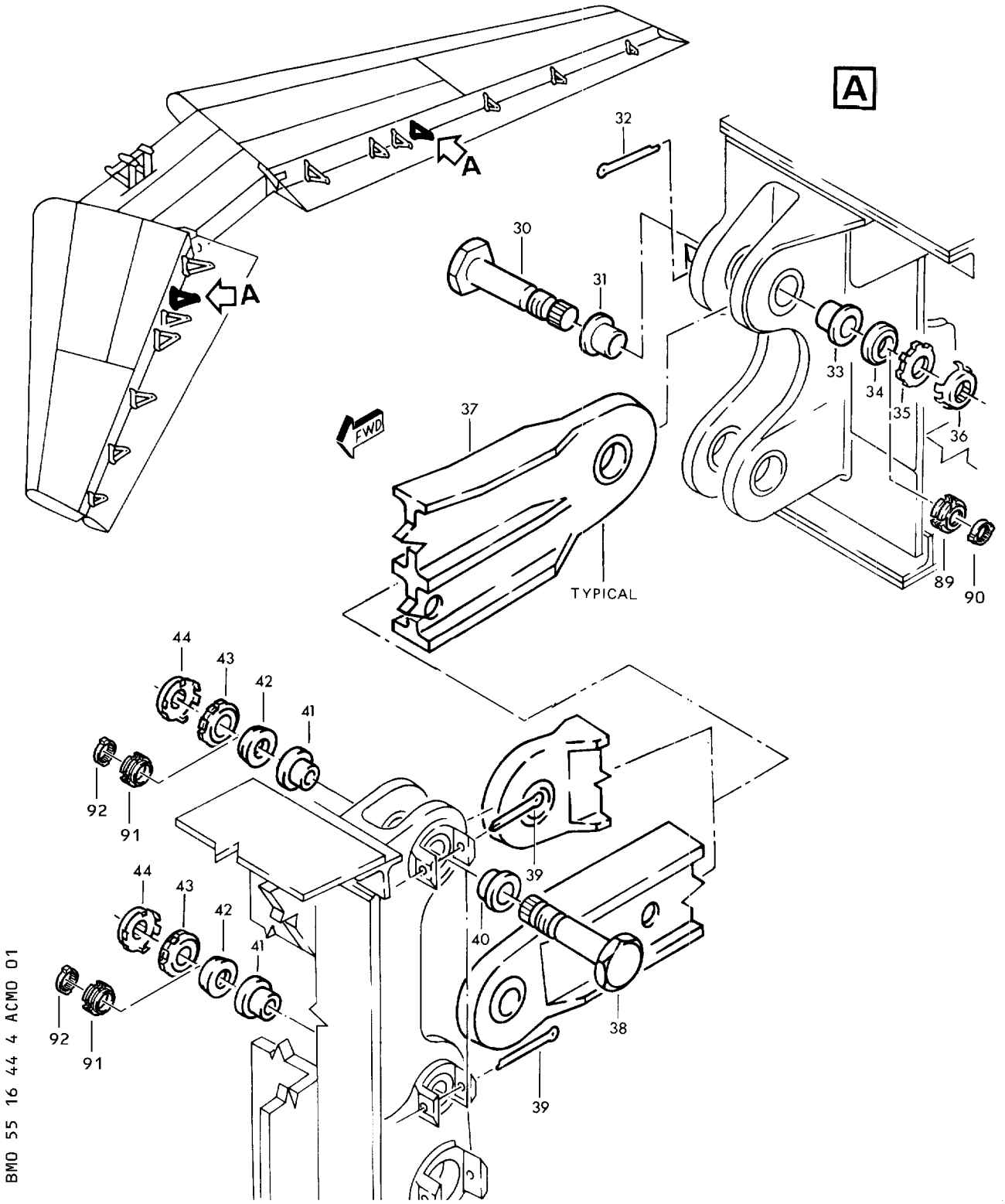
R (e)Install the cotter pins, (52) and (59).
R (3)Install the hinge-arm no. 2 LH and no. 4 RH as follows:
R (Ref. Fig. 402)
R (a)Install the bushes, (31), (33), (40) and (41) position the hinge
R arm (37), bolts, (30) and (38) and washers, (33) and (42).
R (b)Install the ring nuts, (89) and (91), using SL90.322-.5625
R (c)TORQUE the ring nut (89) to between 2.21 and 2.7 m.daN (16.3 and
R 20.0 lbf.in).
R (c)TORQUE the ring nut (91) to between 1.32 and 1.62 m.daN (9.7 and
R 11.95 lbf.in).
R (d)Intall the retaining rings, (90) and (92), using STA-LOK extractor
R P/N SL90.314-.5625
R (e)Install the cotter pins, (32) and (39).

R ** ON ALL ELEVATORS
E. Test
(1)Return the horizontal stabilizer to operating condition
(Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of the elevator mechanical control
(Ref. 27-31-00, P. Block 501).
(3)Check that the gap between stop and hinge arm is approximately
2.0 mm (0.08 in.) when the elevator is fully down .
(4)Make the horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

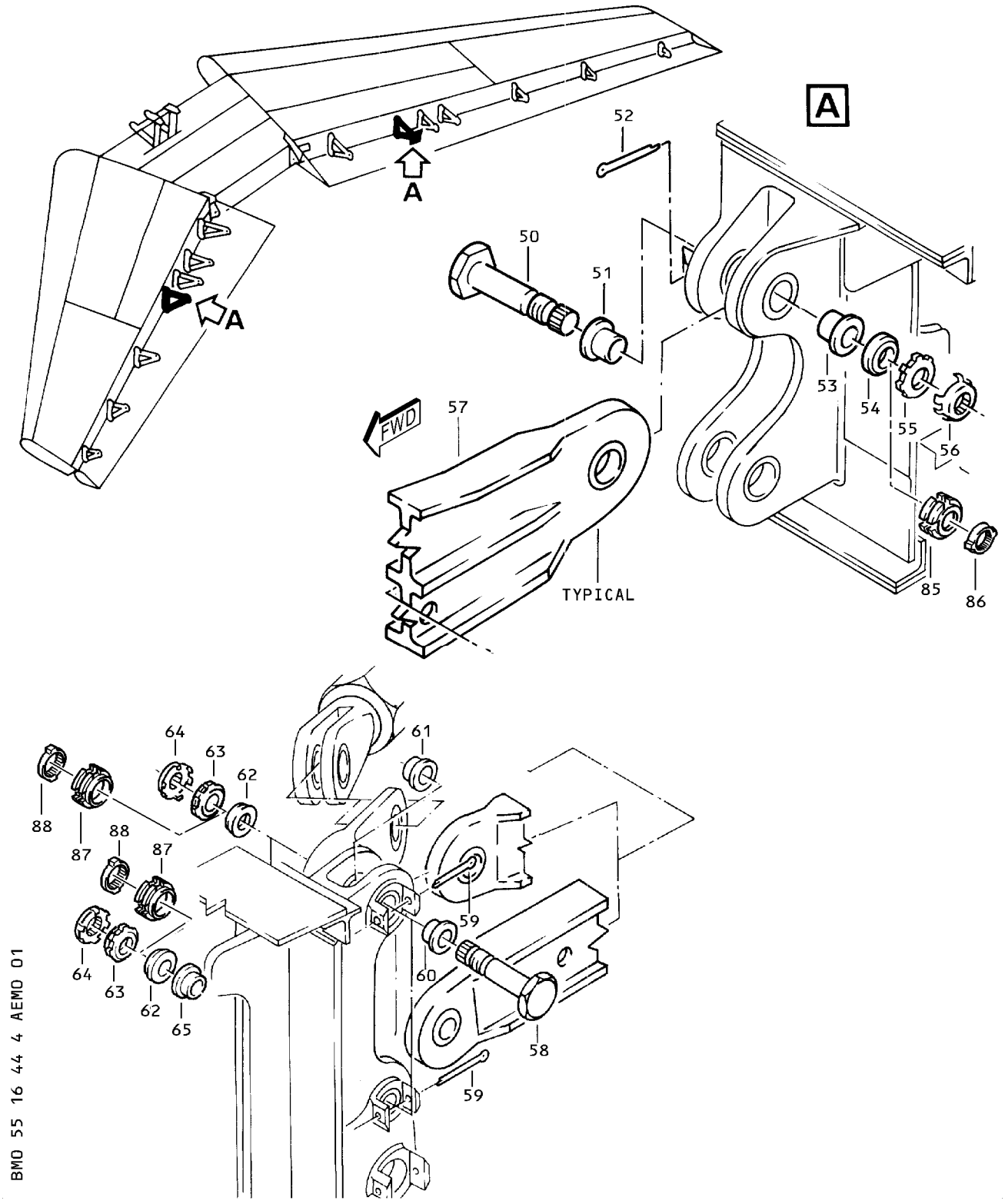
F. Close-Up
(1)Make sure that the working area is clean and clear of tools and
equipment.
(2)Use a brush to apply corrosion-preventive compound (Mat. No. 05-005)
to the visible cadmium-plated items (Ref. 51-75-10, P. Block 801).
(3)Apply a thin layer of moisture-removing oil (Mat. No. 05-027) and
corrosion-preventive compound (Mat. No. 05-005) to hinge arms and
support struts (Ref. 51-75-10, P. Block 801).
(4)Install the leading-edge access panels (Ref. 55-22-13, P. Block 401)
(5)Install or close the trailing-edge access panels (Ref. 55-13-13,
P. Block 401).
(6)Return the horizontal stabilizer to operating condition
(Ref. 55-00-00, P. Block 301).
(7)Remove the access platform.



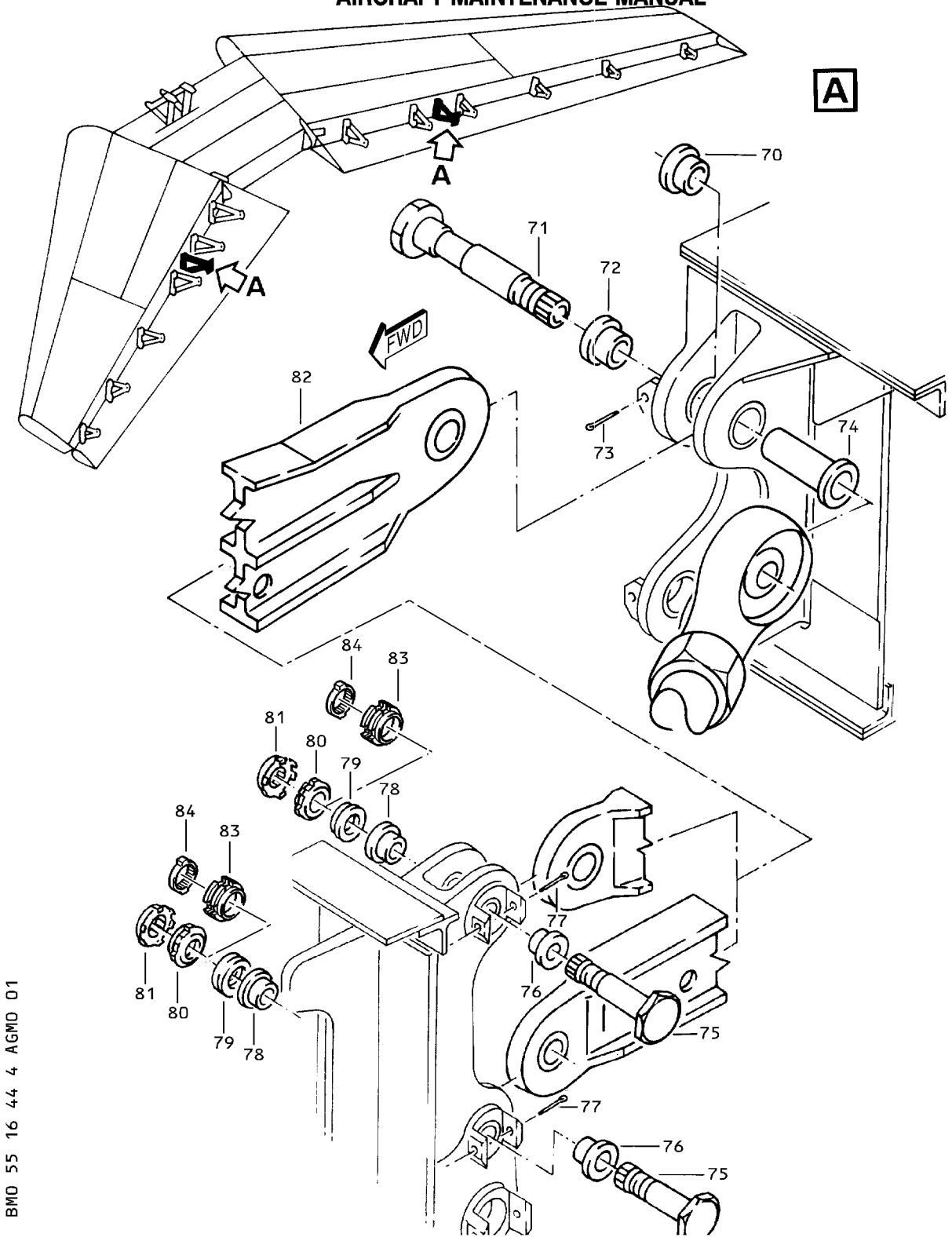
Hydraulic Pipeline and Electrical Harness Attachment
Figure 401



Hinge-Arm No. 2 LH and No. 4 RH
Figure 402



Hinge-Arm No. 4 LH and No. 2 RH
Figure 403



Hinge-Arm No. 3
Figure 404

WARNING: STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. Block 301).

CAUTION: MAKE SURE THAT THE HINGE ARMS ARE SUFFICIENTLY PROTECTED DURING REMOVAL/INSTALLATION TO AVOID DAMAGE TO THE SURFACE PROTECTION.

NOTE: SHUR-LOK and STA-LOK locking systems are interchangeable.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, up to 8 m (26 ft.)
B. 98A27303002000	Centering Bullets and Pins - Elevator Hinge Pins
C. 98A27408018000	Socket Wrench Set - Elevator Bearings
D. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK (for SHUR-LOK Locking System)
E. SL90.313-.5625	Tool - Installation, Tab Washers STA-LOK NSA5454(for STA-LOK Locking System)
F. SL90.314-.5625	Tool - Extraction, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
G. SL90.322-.5625	Wrenches - Notched, Tightening of Nuts NSA54540 (for STA-LOK Locking System)
H.	Elevator Support
J.	Torque Wrench, up to 2.0 m.daN (177.0 lbf.in.)
K.	Lockwashers
L. Material No. 04-004	Common Greases (Ref. 20-31-00)
M. Material No. 05-005	Special Materials (Ref. 20-31-00)
N. Material No. 05-027	Special Materials (Ref. 20-31-00)
P. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 20-28-11, P. Block 1	Electrical Bonding
- 27-31-00, P. Block 501	Mechanical Control and Pitch Uncoupling
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-13-13, P. Block 401	Trailing Edge Access Panels
- 55-22-13, P. Block 401	Leading Edge Access Panels

2. Procedure

A. Job Set-Up

(1)Make the horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(2)Position the access platform.
(3)Remove or open the horizontal-stabilizer trailing-edge access-panels, as required (Ref. 55-13-13, P. Block 401).
(4)Remove or open the elevator leading-edge access-panels, as required (Ref. 55-22-13, P. Block 401).
(5)Raise the elevator by hand to approximately neutral position and place the applicable support under the elevator to prevent droop.

** ON ELEVATOR WITH SHUR-LOK LOCKING SYSTEM

B. Removal

(Ref. Fig. 401)

NOTE: Use the SHUR-LOK tool set P/N 98A27907509000 to remove lockwashers.

NOTE: Use the groove nut wrenches from tool set P/N 98A27408018000 to remove ring nuts.

NOTE: During removal, record location of each item to ensure the correct installation.

(1)Remove the nuts (12), bolts (8), washers (9) and bonding straps (10).
(2)Remove the lockwashers, (1) and (18), ring nuts, (2) and (17), washers, (3) and (16), bolts, (7) and (13), washer (6), hinge arm (11) and bushes, (4), (5), (14) and (15).

** ON ELEVATOR WITH STA-LOK LOCKING SYSTEM

B. Removal

(Ref. Fig. 401)

NOTE: During removal, record location of each item to ensure the correct installation.

(1)Remove the nuts (12), bolts (8), washers (9) and bonding straps (10).
(2)Remove the retaining ring, (21) and (38), using STA-LOK extractor P/N SL90.314-.5625
(3)Remove the ring nuts, (22) and (37), using notched the wrench P/N SL90.322-.5625
(4)Remove the washers, (3) and (16), bolts, (7) and (13), washers (6), hinge arm (11) and bushes, (4), (5), (14) and (15).

** ON ALL ELEVATORS

C. Preparation for Installation

(1)Clean all of the items with cleaning agent (Mat. No. 11-004).
(2)Make sure that the hinge arms are free from damage.
(3)Make sure that the sealant beads around bushes of hinge arm lugs are in good condition and repair if necessary.

CAUTION: MAKE SURE THAT THE SELF-LUBRICATING BEARINGS ARE NOT CONTAMINATED WITH GREASE.

(4)Treat all of the bushes and bolts with grease (Mat. No. 04-004).

** ON ELEVATOR WITH SHUR-LOK LOCKING SYSTEM

D. Installation

(Ref. Fig. 401)

NOTE: Use the centering bullets and pins P/N 98A27303002000 to install the elevator hinge-arm bolts.

NOTE: Use the socket wrench set P/N 98A27408018000 to tighten ring nuts.

NOTE: Use the SHUR-LOK tool set P/N 98A27907509000 to install lockwashers.

(1)Install the bushes, (4), (5), (14) and (15).
(2)Position the hinge arm (11) and install the bolts, (7) and (13), washers, (6), (3) and (16), and ring nuts, (2) and (17).

NOTE: Make sure that the correct bolt (7) is installed.

(3)TORQUE the ring nuts, (2) and (17), to between 1.32 and 1.62 m.daN (116.8 and 143.4 lbf.in.).
(4)Install the lockwashers, (1) and (18).
(5)Install the bonding straps (10), washers (9), bolts (8) and nuts (12). (Ref. 20-28-11, P. Block 1.)
(6)Remove the elevator support clear of elevator travel range.

** ON ELEVATOR WITH STA-LOK LOCKING SYSTEM

D. Installation

(Ref. Fig. 401)

NOTE: Use the centering bullets and pins P/N 98A27303002000 to install the elevator hinge-arm bolts.

(1)Install the bushes, (4), (5), (14) and (15).
(2)Position the hinge arm (11) and install bolts, (7) and (13), washers, (6), (3) and (16), and ring nuts, (22) and (37).
NOTE: Make sure that the correct bolt (7) is installed.

(3)TORQUE the ring nuts, (22) and (37) to between 1.32 and 1.62 m.daN (116.8 and 143.4 lbf.in.) using notched wrench P/N SL90.322-.5625.
(4)Install the retaining ring, (21) and (38), using STA-LOK tab washer installation tool P/N SL90.313-.5625
(5)Install the bonding straps (10), washers (9), bolts (8) and nuts (12). (Ref. 20-28-11, P. Block 1.
(6)Remove the elevator support clear of elevator travel range.

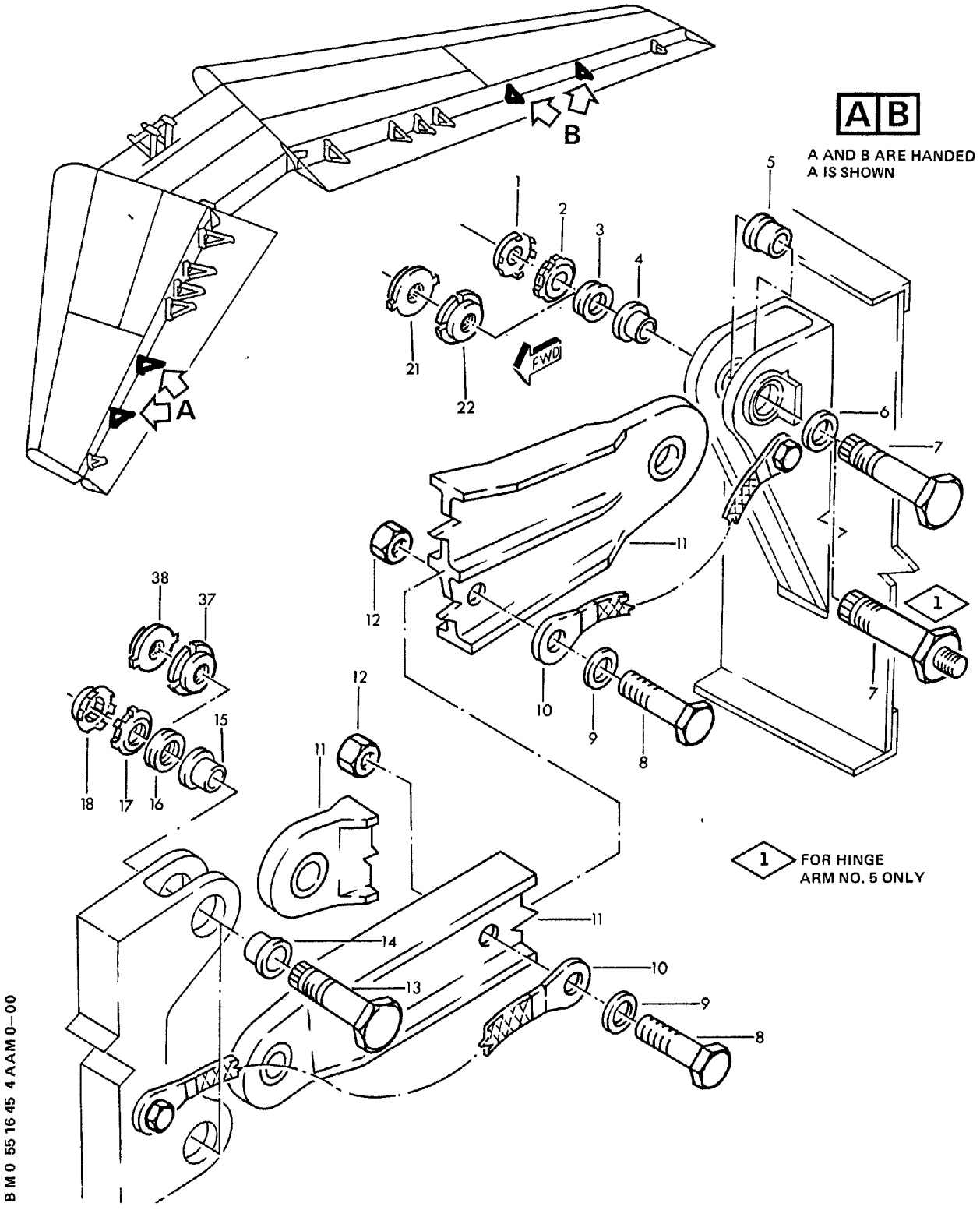
** ON ALL ELEVATORS

E. Test

(1)Return the horizontal stabilizer to operating condition (REf. 55-00-00, P. Block 301).
(2)Carry out the functional test of elevator mechanical control (Ref. 27-31-00, P. Block 501).
(3)Make the horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

F. Close-Up

(1)Make sure that the working area is clean and clear of tools and equipment.
(2)Use a brush to apply corrosion-preventive compound (Mat. No. 05-005) to the visible cadmium-plated items (Ref. 51-75-10, P. Block 801).
(3)Apply a thin layer of moisture-removing oil (Mat. No. 05-027) and corrosion-preventive compound (Mat. No. 05-005) to hinge arms (Ref. 51-75-10, P. Block 801).
(4)Install or close the leading-edge access panels (Ref. 55-22-13, P. Block 401).
(5)Install or close the horizontal-stabilizer trailing-edge access-panels (Ref. 55-13-13, P. Block 401).
(6)Return the horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
(7)Remove the access platform.



Elevator Hinge-Arm No. 5 and No. 6
Figure 401

ELEVATOR SUPPORT STRUTS - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. Block 301).

NOTE : SHUR-LOK and STA-LOK locking systems are interchangeable.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, Adjustable 3.60 m to 8 m (11 ft. to 26 ft.)
B. 98A27303002000	Centering Bullets and Pins - Elevator Hinge Pins
C. 98A27308020000	Fixture - Horizontal Stabilizer/Elevator
D. 98A27408017000	Socket Wrench - Diagonal Strut
E. 98A27408018000	Socket Wrench Set - Elevator Bearings
F. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK (for SHUR-LOK Locking System)
G. SL90.313	Tool - Installation, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
H. SL90.314	Tool - Extraction, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
J. SL90.315-.3750	Wrenches - Notched, Tightening of Nuts NSA5454 (for STA-LOK Locking System)
K. SL90.322-.5625	Wrenches - Notched, Tightening of Nuts NSA5454 (for STA-LOK Locking System)
L. SL90.356-.3750	Tool - Extraction, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
M. SL90.359-.3750	Tool - Installation, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
N.	Cotter Pins
P.	Lockwashers
Q. Material No. 05-002	Special Materials (Ref. 20-31-00)
R. Material No. 05-005	Special Materials (Ref. 20-31-00)
S. Material No. 05-027	Special Materials (Ref. 20-31-00)

Referenced Procedures

- 27-31-00, P. Block 501	Mechanical Control and Pitch Uncoupling
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
- 55-13-13, P. Block 401	Trailing Edge Access Panels
- 55-22-13, P. Block 401	Leading Edge Access Panels

2. Procedure

A. Job Set-Up

(1)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

(2)Position access platform.

(3)Remove trailing edge access panels 334CT/CB/EB and 344CT/CB/EB (Ref. 55-13-13, P. Block 401).

(4)Remove elevator leading edge access panels 335BB/BT and 345 BB/BT (Ref. 55-22-13, P. Block 401).

R (5)To position fixture (PN 98A27308200000) on elevator, hoist and
R set the elevator in the up position to avoid interference with
R the fixture.

** ON ELEVATORS WITH SHUR-LOK LOCKING SYSTEM

B. Removal (Ref. Fig. 401)

(1)Remove lockwashers (8, 11) using relevant tool in SHUR-LOK tool set P/N 98A27907509000.

(2)Remove nuts (7, 12) using relevant tool in socket wrench set P/N 98A27408018000.

(3)Remove washers (6, 13) and cotter pin (3).

(4)Install centering bullet P/N 98A27303002000 on bolt (1).

(5)Drive out bolt with centering bullet and remove bushes (2, 14).

(6)Remove diagonal support strut (4).

** ON ELEVATORS WITH STA-LOK LOCKING SYSTEM

B. Removal (Ref. Fig. 401)

(1)Remove retaining ring (21) using STA-LOK extractor P/N SL90.356-.3750.

(2)Remove retaining ring (18) using STA-LOK extractor P/N SL90.314.

(3)Remove ring nut (22) using notched wrench P/N SL90.315-.3750.

(4)Remove ring nut (17) using notched wrench P/N SL90.322-.5625.

(5)Remove washers (6, 13) and cotter pin (3).

(6)Install centering bullet P/N 98A27303002000 on bolt (1).

(7)Drive out bolt with centering bullet and remove bushes (2, 14).

(8)Remove diagonal support strut (4).

** ON ALL ELEVATORS

C. Preparation for Installation

(1)Check diagonal support strut (4) and bearing (25) for damage and corrosion.

(a)If the bearing (25) is corroded or damaged, change bearing as follows:

1 Remove cotter pin (26) and remove nut (24), use tool P/N 98A27408017000.

2 Remove bearing (25), for replacement use a self-lubricating bearing.

3 Install self-lubricating bearing (25).

4 Install nut (24).

5 TORQUE nut to 1.962 + 0.981 m.daN (14.46 + 7.23 lbf.ft.) using notched wrench P/N 98A27408017000.

6 Install cotter pin (26).

D. Installation
(1)Position diagonal support strut (4).
(2)Apply corrosion-preventive paste (Mat. No. 05-002) to bushes (2, 14) and plain shank of bolt (1).
(3)Install bushes (2, 14) and bolt (1), use centering bullet P/N 98A27303002000.
(4)Install washer (6) and nut (7) with relevant tool in socket wrench set P/N 98A2740801800 for SHUR-LOK locking system or nut (17) with notched wrench P/N SL 90.322-.5625 for STA-LOK locking system.
NOTE : Nut should be finger tightened only.
(5)Remove fixture P/N 98A27308020000
(6)Check clearance between fuselage and elevator (Ref. Fig. 402)
(a)With elevator at 'ZERO' position, measure gap between fuselage and elevator:
Point A: 50.2 ± 5 mm (1.96 ± 0.2 in.)
Point B: 55.4 ± 5 mm (2.18 ± 0.2 in.)
(b)If the gaps measured at A and B are out of limits:
1 Install fixture P/N 98A27308020000.
2 Remove ring nut (7) using relevant tool in socket wrench set P/N 98A27408018000 for SHUR-LOK locking system or ring nut (17) using notched wrench P/N SL90.322-.5625 for STA-LOK locking system and washer (6).
3 Install centering bullet P/N 98A27303002000 on bolt (1).
4 Drive out bolt with centering bullet and remove bushes (2, 14).
5 Remove diagonal support strut (4).
6 Unlock lockwasher (10), release nuts (9), remove eye-end, fork-end and lockwashers (10).
7 Install eye-end and fork-end with new lockwashers (10).
8 Position diagonal support strut (4).
9 Install bushes (2, 14) and bolt (1), use centering bullet P/N 98A27303002000 for SHUR-LOK locking system or nut (17) with with notched wrench P/N SL90.322-.5625 for STA-LOK locking system.
10 Install washer (6) and nut (7) with relevant tool in socket wrench set P/N 98A27408018000 for SHUR-LOK locking system or nut (17) with notched wrench P/N SL90.322-.5625 for STA-LOK locking system.
11 Remove fixture P/N 98A27308020000.
12 Adjust the elevator by turning the tube of the diagonal support strut so that clearances are in tolerance.
13 TORQUE lock nuts (9) to 2.0 m.daN (177 lbf.in.) and safety with lockwashers (10) (Ref. Fig. 401).

** ON ELEVATORS WITH SHUR-LOK LOCKING SYSTEM

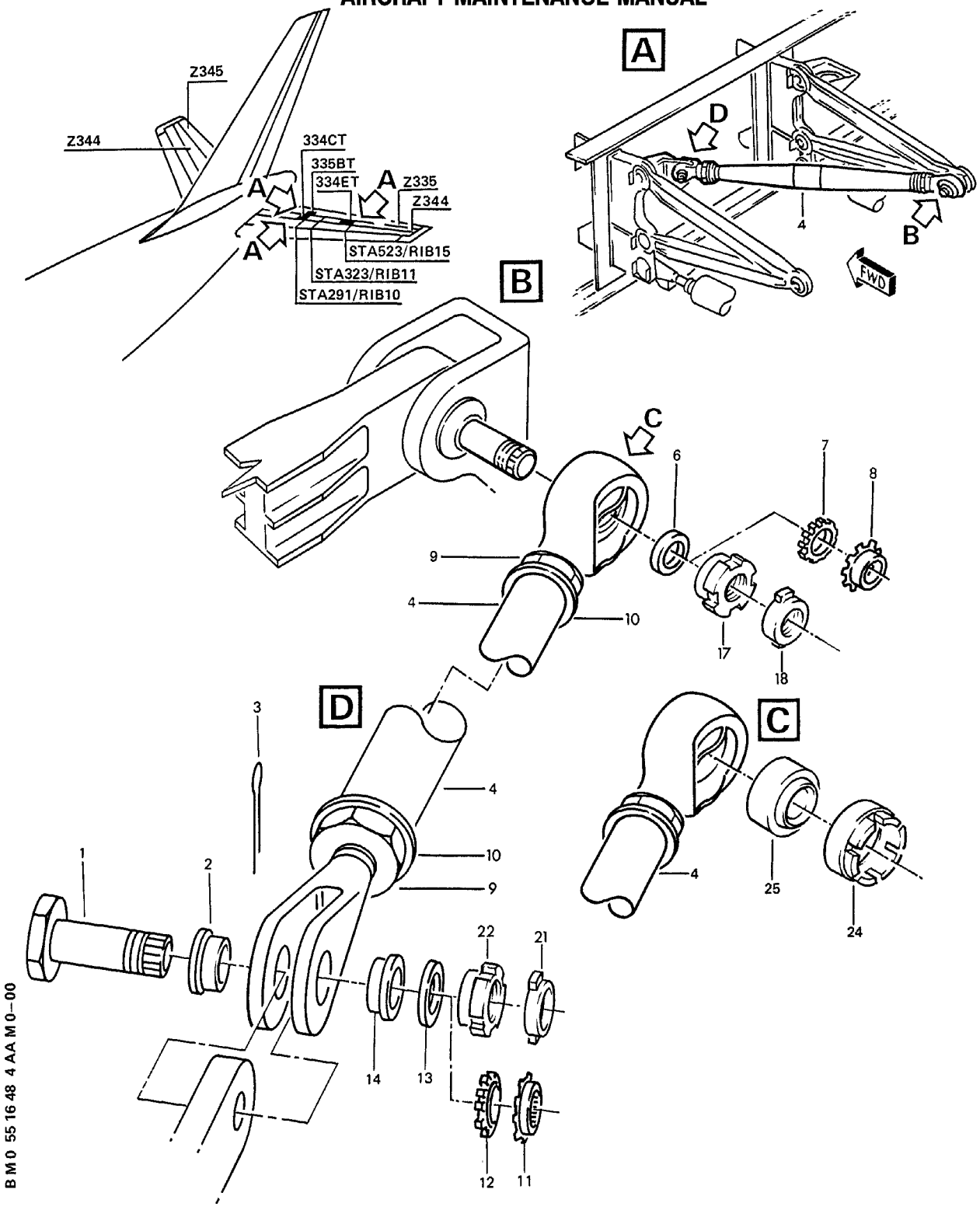
(7) TORQUE nut (7) to between 1.5 and 2.0 m.daN (132.7 and 177 lbf.in.).
(8) Install lockwasher (8) with relevant tool in SHUR-LOK tool set P/N 98A27907509000.
(9) Remove centering bullet P/N 98A27303002000, install washer (13) and nut (12) with relevant tool in socket wrench set P/N 98A27408018000. TORQUE nut (12) to between 1.5 and 2.0 m.daN (133 and 177 lbf.in.).
(10) Install lockwasher (11) with relevant tool in SHUR-LOK tool set P/N 98A27907509000.
(11) Install cotter pin (3).

** ON ELEVATORS WITH STA-LOK LOCKING SYSTEM

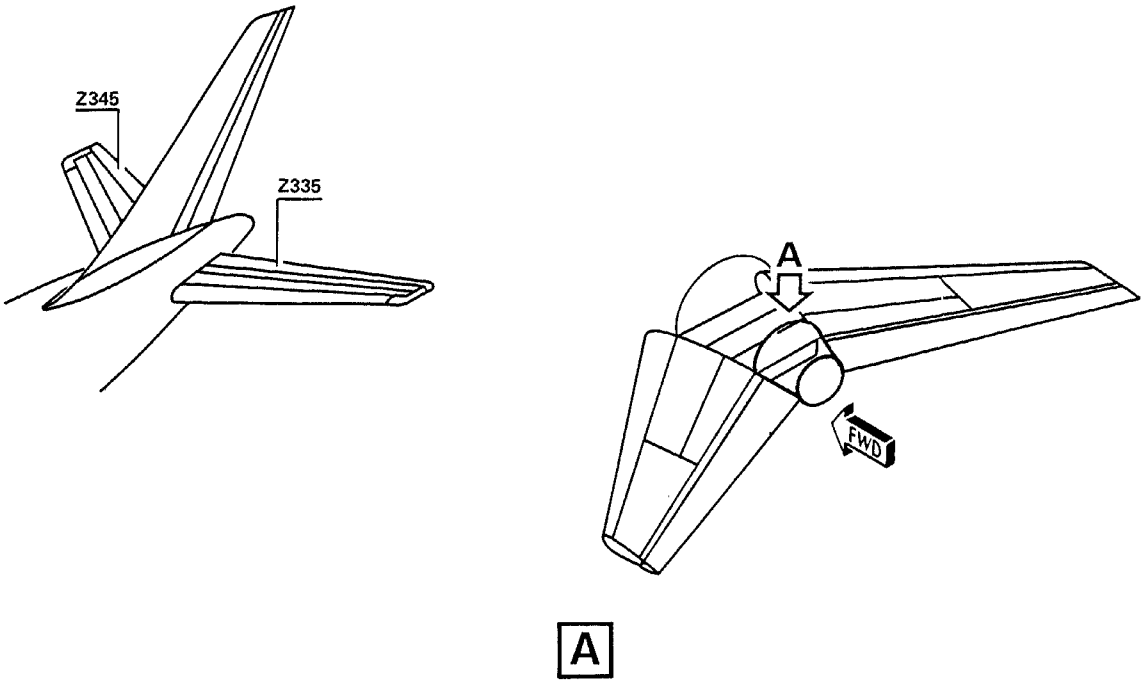
(7) TORQUE ring nut (17) to between 1.5 and 2.0 m.daN (132.7 and 177 lbf.in.) using notched wrench P/N SL90.322-.5625.
(8) Install retaining ring (18) using STA-LOK tab washer installation tool P/N SL90.313.
(9) Remove centering bullet P/N 98A27303002000.
(10) Install washer (13) and ring nut (22).
(11) TORQUE ring nut (22) to between 1.5 and 2.0 m.daN (132.7 and 177 lbf.in.) using notched wrench P/N SL90.315.-3750.
(12) Install retaining ring (21) using STA-LOK tab washer installation tool P/N SL90.359-.3750.
(13) Install cotter pin (3).

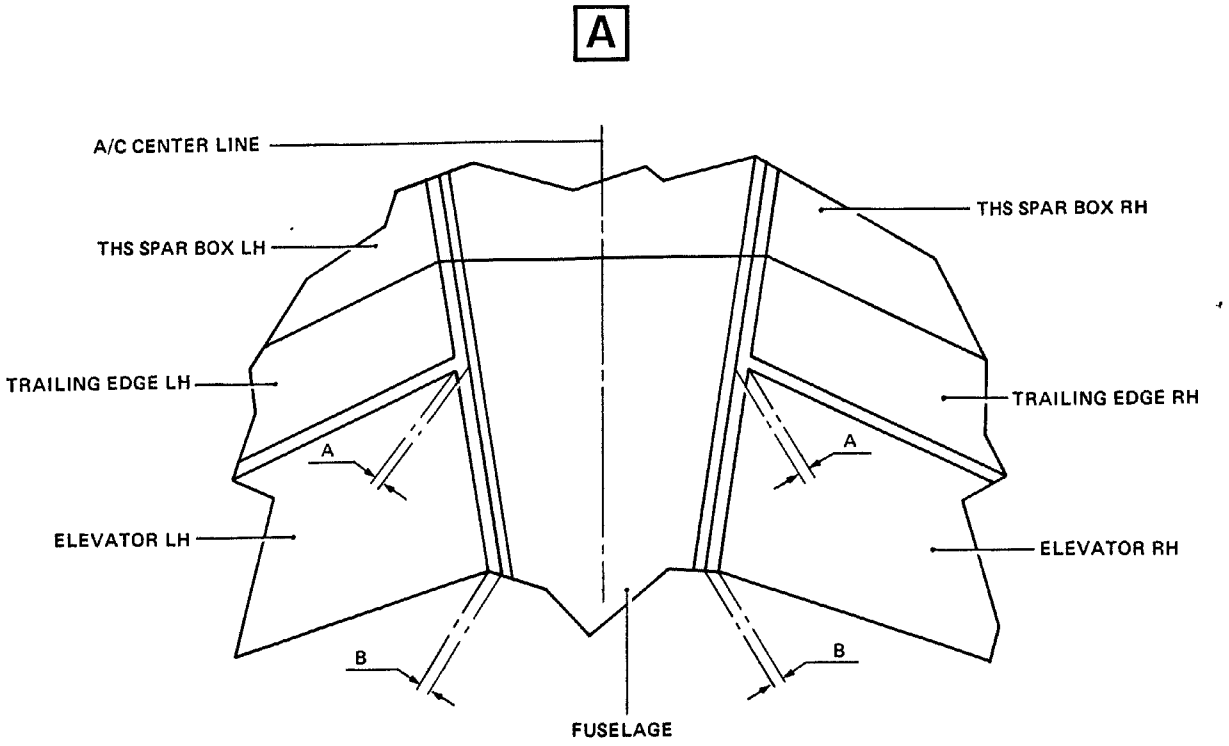
E. Test
(1)Return horizontal stabilzier to operating condition (Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of elevator (Ref. 27-31-00, P. Block 501).
(3)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Apply corrosion-preventive compound (Mat. No. 05-005), using a brush, to visible cadmium plated items.
(3)Apply moisture-removing oil (Mat. No. 05-027) and corrosion-preventive compound (Mat. No. 05-005) to support strut and surrounding area.
(4)Close elevator leading edge access panels (Ref. 55-22-13, P. Block 401).
(5)Close trailing edge access panels (Ref. 55-13-13, P. Block 401).
(6)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
(7)Remove access platform.



Elevator Support Strut
Figure 401





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Clearance between Elevator and Fuselage
Figure 402

ELEVATOR - DESCRIPTION AND OPERATION

1. General

The LH and RH elevators are of similar shape and construction, but are handed.
Each elevator is attached by seven hinge arms to the rear spar of the horizontal stabilizer. Each elevator is moved about the hinges by three hydraulic servo actuators to give pitch control of the aircraft.

2. Component Location

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF
	SPAR BOX-ELEVATOR			335/345	55-21-00
	LEADING EDGE-ELEVATOR			335/345	55-22-00
	END CAP-INBOARD			335/345	55-24-00
	TIP-ELEVATOR			335/345	55-24-00
	ATTACH FITTINGS-ELEVATOR			335/345	55-26-00
	DISCHARGERS-STATIC				23-60-00

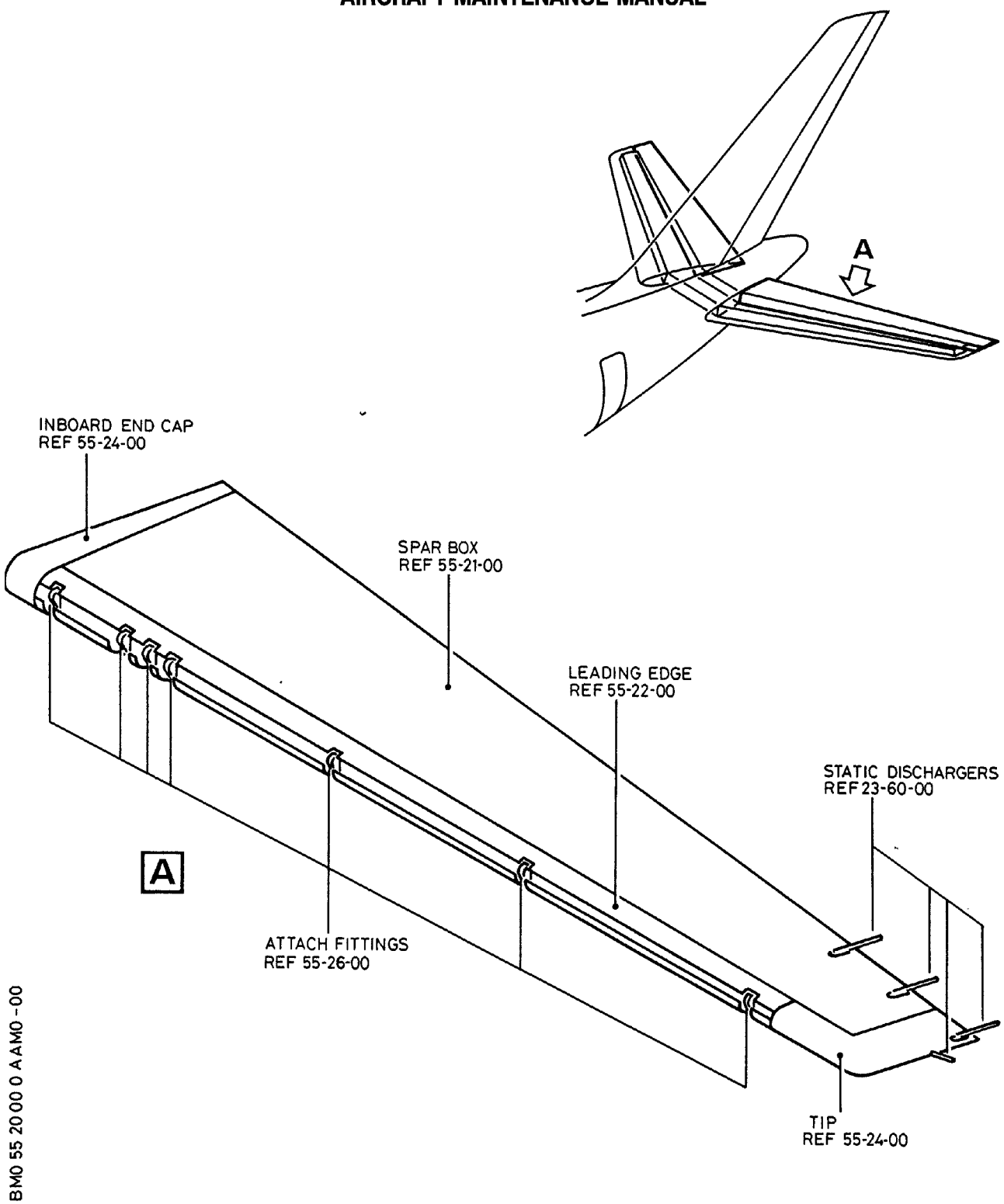
3. Description (Ref. Fig. 001)

A. The elevator is made up of a top and a bottom skin, a spar, and a trailing edge piece which are all joined together to form the spar box. A detachable leading edge, a tip and inboard end cap complete the elevator.

B. The top and bottom skins and the spar are made of carbon fiber reinforced plastic (CFRP). Glass fiber reinforced plastic (GFRP) is used to make the leading edge and the inboard end cap.
The tip is made of aluminun aloy.

C. Three hoist points are provided on the elevator top skin. A sling can be attached to these during removal and installation of the elevator.

D. Four static dischargers are attached to the elevator.



Elevator
Figure 001

ELEVATORS - INSPECTION/CHECK

WARNING: STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION: DO NOT CAUSE DAMAGE TO THE SURFACES. THE COMPONENTS ARE MADE OF CARBON FIBER REINFORCED PLASTIC (CFRP).

NOTE: If there is the suspicion of a defect when making the following inspection/check, an approved non-destructive test must be carried out.
Subsequently, if a defect it is proven that it exist, a structural repair must be carried out or the component must be replaced.

NOTE: Only the procedure of the left-hand (LH) side is given, the right-hand (RH) side is similar.

1. Elevator - Inspection/Check

A. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, 5.5 and 6.5 m (18 and 21 ft.)
B. Material No. 09-005	Sealant
C. Material No. 11-010	Isopropyl Alcohol
D. Material No. 19-003	Lint-Free Cotton Cloth
E. Material No. 19-015	Polyvinyl Fluoride Film (Tedlar)
Referenced Procedures	
- 23-60-00, P. Block 601	Static Discharging - Inspection/Check
- 55-13-11, P. Block 401	Trailing Edge - Removal/Installation
- 55-13-13, P. Block 401	Trailing Edge Access Panels - Removal/Installation
- 55-00-00, P. Block 301	Stabilizer - Standard Warnings and Procedures
- 55-20-00, P. Block 101, C-1	Elevator - Allowable Damage
- 55-20-00, P. Block 101, C-2	Elevator - Allowable Damage
- 55-20-00, P. Block 201, C-1	Elevator - Repairs
- 55-20-00, P. Block 201, C-2	Elevator - Repairs
- 55-22-11, P. Block 401	Leading Edge - Removal/Installation
- 55-22-13, P. Block 401	Leading Edge Access Panels - Removal/Installation
- 55-24-11, P. Block 401	Elevator Tips and Inboard End Caps - Removal/Installation

B. Procedure
(1)Job Set-Up
(a)Make the horizontal stabilizer safe (Ref. 55-00-00, P. Block 301)
(b)Put the access platforms.

(c)Open or remove the horizontal-stabilizer trailing-edge access panels (Ref. 55-13-13, P. Block 401).
(d)Open or remove the horizontal-stabilizer trailing-edge sections (Ref. 55-13-11, P. Block 401).
(e)Remove the elevator leading-edge access-panels (Ref. 55-22-13, P. Block 401).
(f)Remove the elevator leading-edge sections (Ref. 55-22-11, P. Block 401).
(g)Remove the elevator tips and inboard end caps (Ref. 55-24-11, P. Block 401).
(h)Remove the cover from the inspection holes on the elevator front spar. (Ref. Fig. 601)

(2)Inspection/Check
(Ref. Fig. 601)
(a)Make a general visual inspection of the elevator top and bottom panels, including trailing edge, external surface.
1 For metallic elevators look for:
- scratches,
- cracks
- dents,
- corrosion,
- general condition.
2 For CFRP Elevators look for:
- delamination,
- scratches,
- cracks,
- dents,
- distortion,
- debonding,
- general condition.
(b)Make sure that the elevator drain holes are not blocked.
(c)Check the static dischargers for condition and security of attachment (Ref. 23-60-00, P. Block 601).
(d)Make sure that the profile of elevator trailing edge has been rounded.

(e)Make a general visual inspection of the elevator spar forward-face.
1 For metallic elevators look for:
- scratches,
- cracks,
- dents,
- corrosion,
- general condition.
2 For CFRP elevators look for:
- delamination,
- scratches,
- cracks,
- dents,
- distortion,

- debonding,
- general condition.

(f)Make a detailed inspection of the elevator hinge supports and actuator fittings. Look for:
- scratches,
- craks,
- dents,
- corrosion,
- condition of fastener,
- protective treatment.

(g)Make a detailed inspection of the elevator skin-panel internal-surface, as far as visible, through the inspection holes on the front spar.
1 For metallic elevators look for:
- scratches,
- cracks,
- dents,
- corrosion,
- general condition.
- condition of sealant,

2 For CFRP Elevators look for:
- delamination,
- scratches,
- craks,
- dents,
- distortion,
- debonding,
- general condition.

(h)If damage found, in metallic elevators, look for limits and repairs to correct the damage refer to following procedures:
1 SRM 55-20-00, P. Block 101, CONFIG-1.
2 SRM 55-20-00, P. Block 201, CONFIG-1.

(i)If damage found, in CFRP elevators, look for limits and repairs to
1 SRM 55-20-00, P. Block 101, CONFIG-2.
2 SRM 55-20-00, P. Block 201, CONFIG-2.

(3)Close-Up
(Ref. Fig. 601)

WARNING: OBEY THE MANUFACTURER'S INTRUCTIONS WHEN YOU USE THE SPECIAL MATERIAL.
THIS MATERIAL IS DANGEROUS.

(a)Make sure that the work area is clean and clear of tools and other items.

(b)Install the new hole covers to the inspection holes of the elevator front spar.
1 Cut a piece of tedlar (Material No. 19-015) with 20 mm

(0.7874 in.) of excess to the hole dimension, to make the hole cover.

2 Abrade the paint of the front spar with scotch brite type A on the area where the hole cover will be bonded.

3 Clean the work area with a lint-free cotton cloth (Material No. 19-003) moist in cleaning agent (material No. 11-010) until contamination is removed. Do not let cleaning agent dry on the surfaces.

4 Bond the hole cover with sealant (Material No. 09-005) in the correct position.

(c) Install the elevator tips and inboard end caps (Ref. 55-24-11, P. Block 401).

(d) Install the elevator leading-edge section (Ref. 55-22-11, P. Block 401).

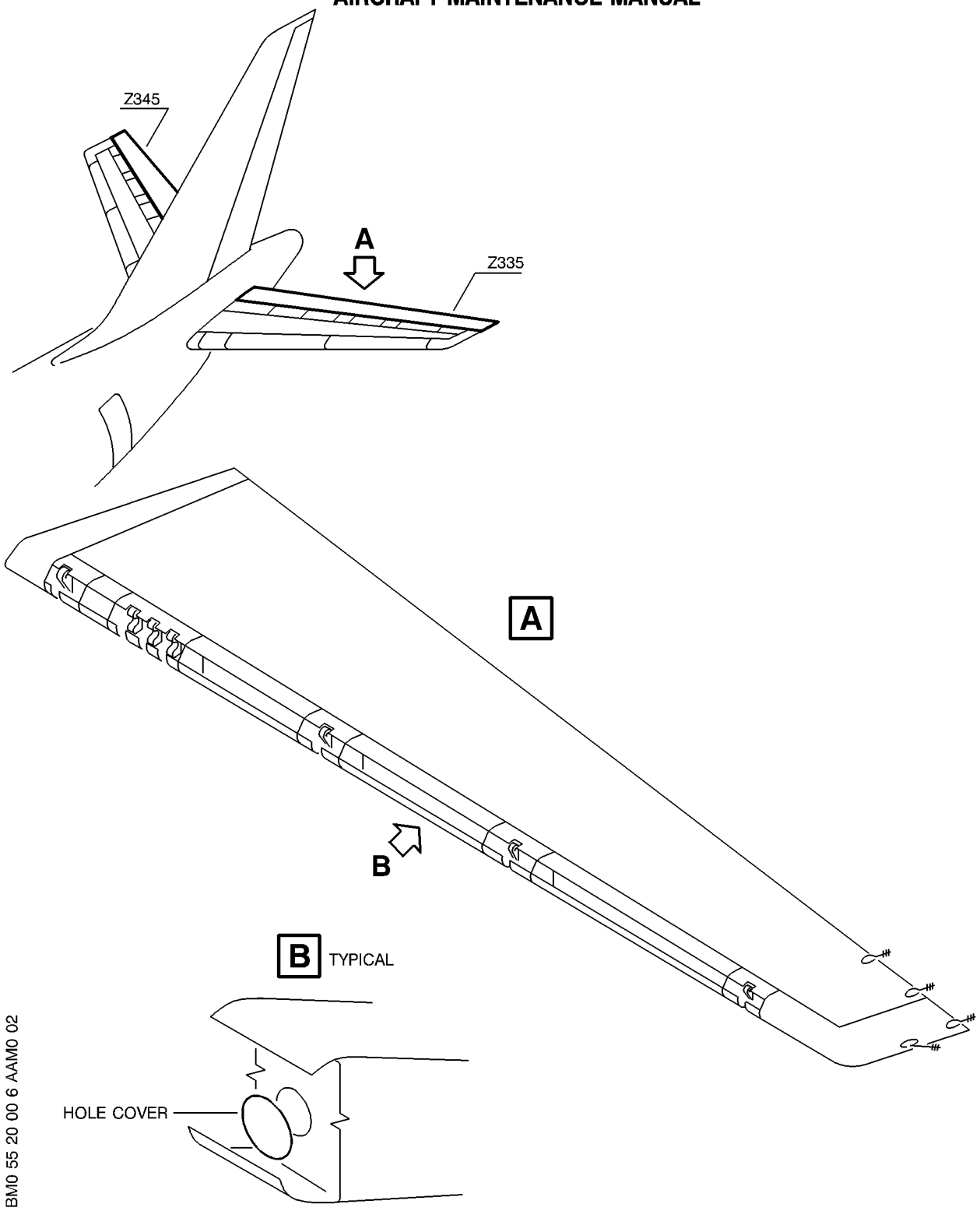
(e) Install the elevator leading-edge access-panels (Ref. 55-22-13, P. Block 401).

(f) Install the horizontal-stabilizer trailing-edge sections (Ref. 55-13-11, P. Block 401).

(g) Install the horizontal-stabilizer trailing-edge access-panels (Ref. 55-13-13, P. Block 401).

(h) Remove the access platforms.

(j) Return the horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).



Hole Covers Replacement
Figure 601

ELEVATOR SPAR BOX - DESCRIPTION AND OPERATION

1. General

A. The elevator spar box is the main structural member of the LH and RH elevators. It consists of a riveted and bonded front spar assembly, 9 ribs, upper and lower skin panels and a trailing edge profile.

2. Description and Operation

(Ref. Fig. 001)

A. The LH and RH elevator spar boxes are integral riveted and bonded assemblies symetrical in design. The component parts are: Front spar, ribs, upper and lower skin panels and a trailing edge profile.

B. Front Spar

(1) The front spar is the main structural member of the elevator spar box. It is made up from a GRP cured hexagonal honeycomb core, glassfabric, carbonfabric, carbon tape and Tedlar film.

(2) A light alloy trailing edge profile is riveted to the rear of the upper and lower skin panels.

(3) Seven elevator hinge fittings are riveted to the forward face of the front spar. Hinge fittings 2, 3 and 4 have an additional bearing assembly to which the elevator servo controls are attached.

(4) A stop bracket is attached by set screws between the upper and lower front of hinge fitting 4 to prevent elevator movement beyond the lowest extent of its normal operating travel.

C. Ribs

(1) The elevator spar box contains 9 ribs which are riveted to the front spar and skin panels. Ribs 2, 5, 6, 7, 10, 13 and 16 are also riveted at the forward end through the flanges of the elevator hinge fittings.

(2) All elevator ribs are made from glassfabric and carbonfabric except Rib 18 which is made from light alloy. The upper and lower edges are folded inwards to form flanges to which the skin panels are riveted.

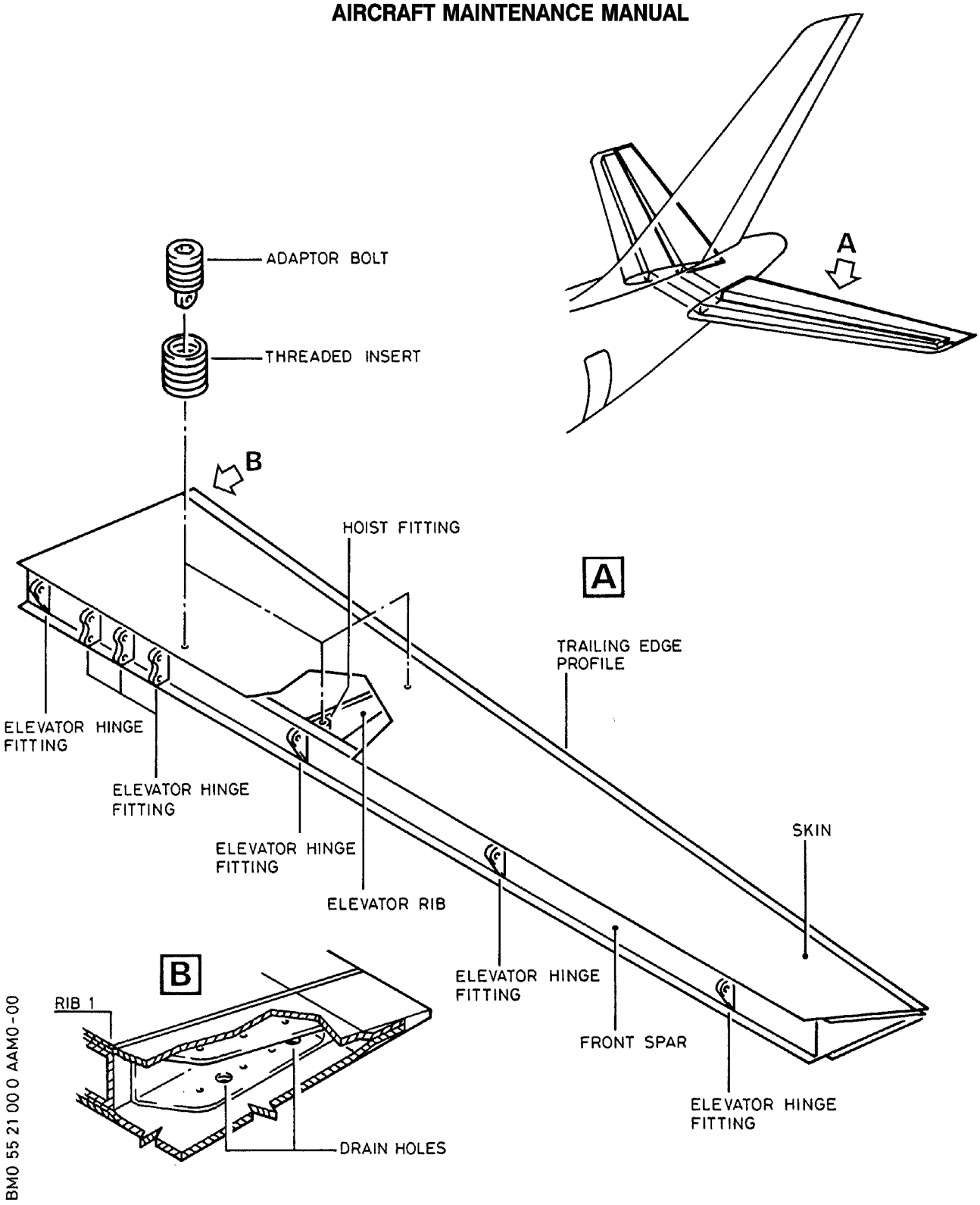
R (3) The elevator upper and lower skins are made of Carbon fiber reinforced
R plastic (CFRP). Five lightning strike strips of light alloy material
R run from front to rear on the upper skin only.

(4) The upper and lower skins extend from RIB ER1 to RIB ER18. Both skins also extend from the elevator front spar to a light alloy trailing edge profile to which they are riveted. They are also riveted together forward of the trailing edge and to each rib and the spar.

(5) Three hoist fittings are provided on each elevator

spar box, each fitting comprising a threaded insert riveted through the upper skin and to the rear face of the front spar outboard of RIBS ER7 and ER10 forward of the trailing edge.

(6) Two static discharges are positioned on the rear of the elevator spar box which in turn is connected to the horizontal stabilizer by bonding leads.



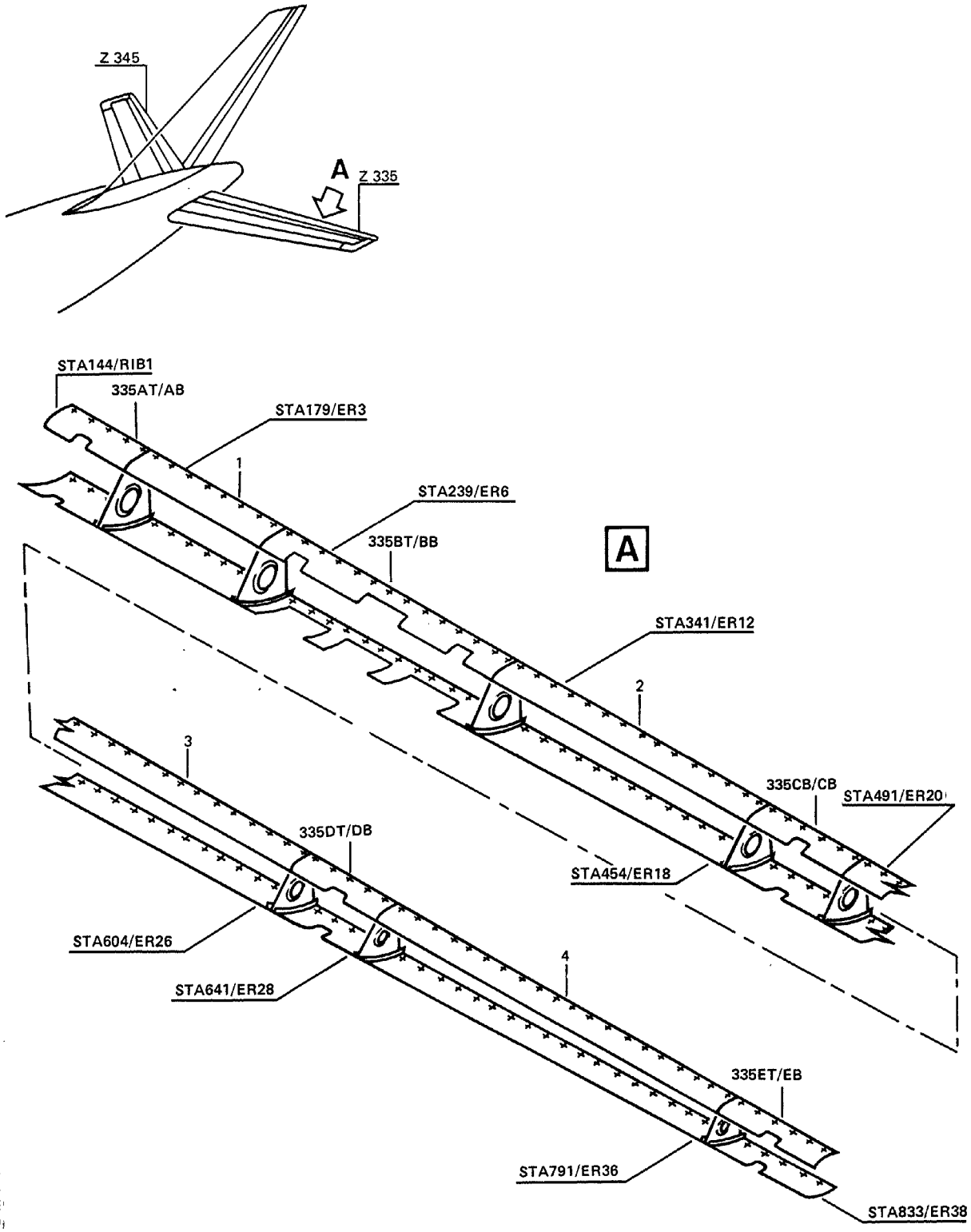
Elevator Spar Box
Figure 001

1. General

A. The LH and RH elevator leading edges comprise four upper and four lower leading edge sections, and five upper and five lower access panels each. All sections and access panels are attached to the elevator front spar by screws.

2. Description (Ref. Fig. 001)

A. The elevator leading edge sections cover the areas between the elevator hinge fittings. Elevator hinge fittings are covered by leading edge access panels which have cutouts for attachment of the elevator. Leading edge sections and access panels are made from honeycomb core laminated by resin fiber composite.



Elevator Leading Edge
Figure 001

ELEVATOR LEADING EDGE - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, 5.5 and 6.5 m (18 and 21 ft.)
B. Material No. 05-002	Special Materials (Ref. 20-31-00)
C. Material No. 05-013	Special Materials (Ref. 20-31-00)
D. Material No. 09-016	Sealants (Ref. 20-31-00)
E. Material No. 09-019	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
- 55-13-11, P. Block 401	Trailing Edge
- 55-13-13, P. Block 401	Trailing Edge Access Panels

2. Procedure

A. Job Set-Up
(1)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(2)Position access platforms.
(3)Remove trailing edge access panels (Ref. 55-13-13, P. Block 401) and trailing edge (Ref. 55-13-11, P. Block 401).

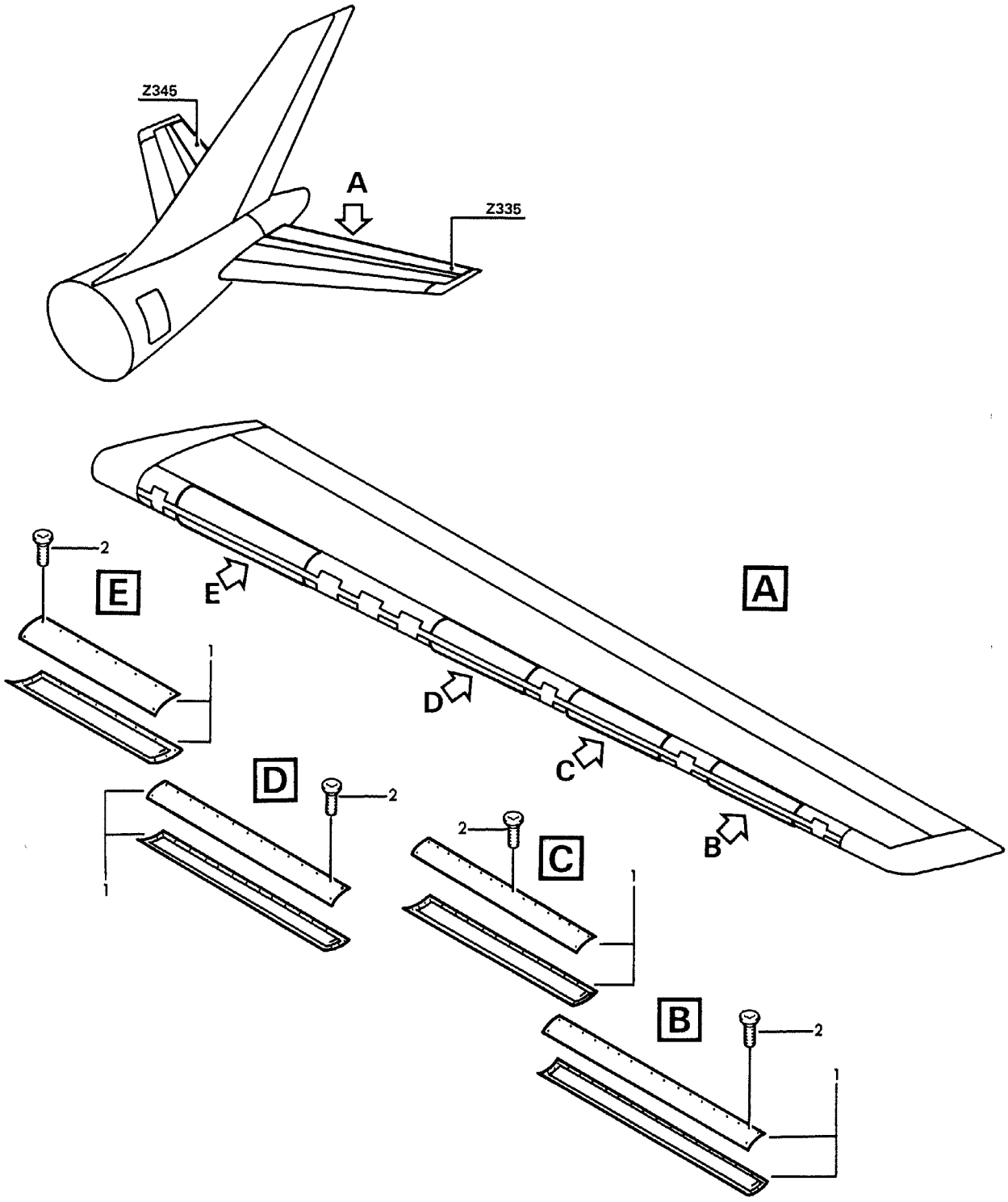
B. Removal (Ref. Fig. 401)
(1)Remove screws (2) and sections (1).

C. Preparation for Installation
(1)Check sealant (Mat. No. 09-016) on mating surfaces of spar box for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of sections (1) which contact spar box.

D. Installation (Ref. Fig. 401)
(1)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (2).
(2)Install sections (1) and screws (2).
(3)If a new section (1) has been installed, check that gaps between section (1) and spar box skin, and section (1) and elevator leading edge panels do not exceed 3.0 mm (0.118 in.).
(4)Install trailing edge (Ref. 55-13-11, P. Block 401) and trailing edge access panels (Ref. 55-13-13, P. Block 401).
(5)Seal gaps between sections (1) and elevator leading edge panels, and between sections (1) and spar box skin with sealant (Mat. No. 09-019).

E. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horizontal stabilizer to normal operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platforms.



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Elevator Leading Edge
Figure 401

LEADING EDGE ACCESS PANELS - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reasons for the Job

   A. Replacement of leading edge access panels

   B. Removal of elevators

   C. Inspection of elevator hinge arms and attach fittings

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, 5.5 and 6.5 m (18 and 21 ft.)
B. 98A27307549000	Pin, Rigging, Elevator Control Bellcranks
C. Material No. 05-002	Special Materials (Ref. 20-31-00)
D. Material No. 05-013	Special Materials (Ref. 20-31-00)
E. Material No. 09-016	Sealants (Ref. 20-31-00)
F. Material No. 09-019	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
- 55-13-11, P. Block 401	Trailing Edge
- 55-13-13, P. Block 401	Trailing Edge Access Panels

3. Procedure

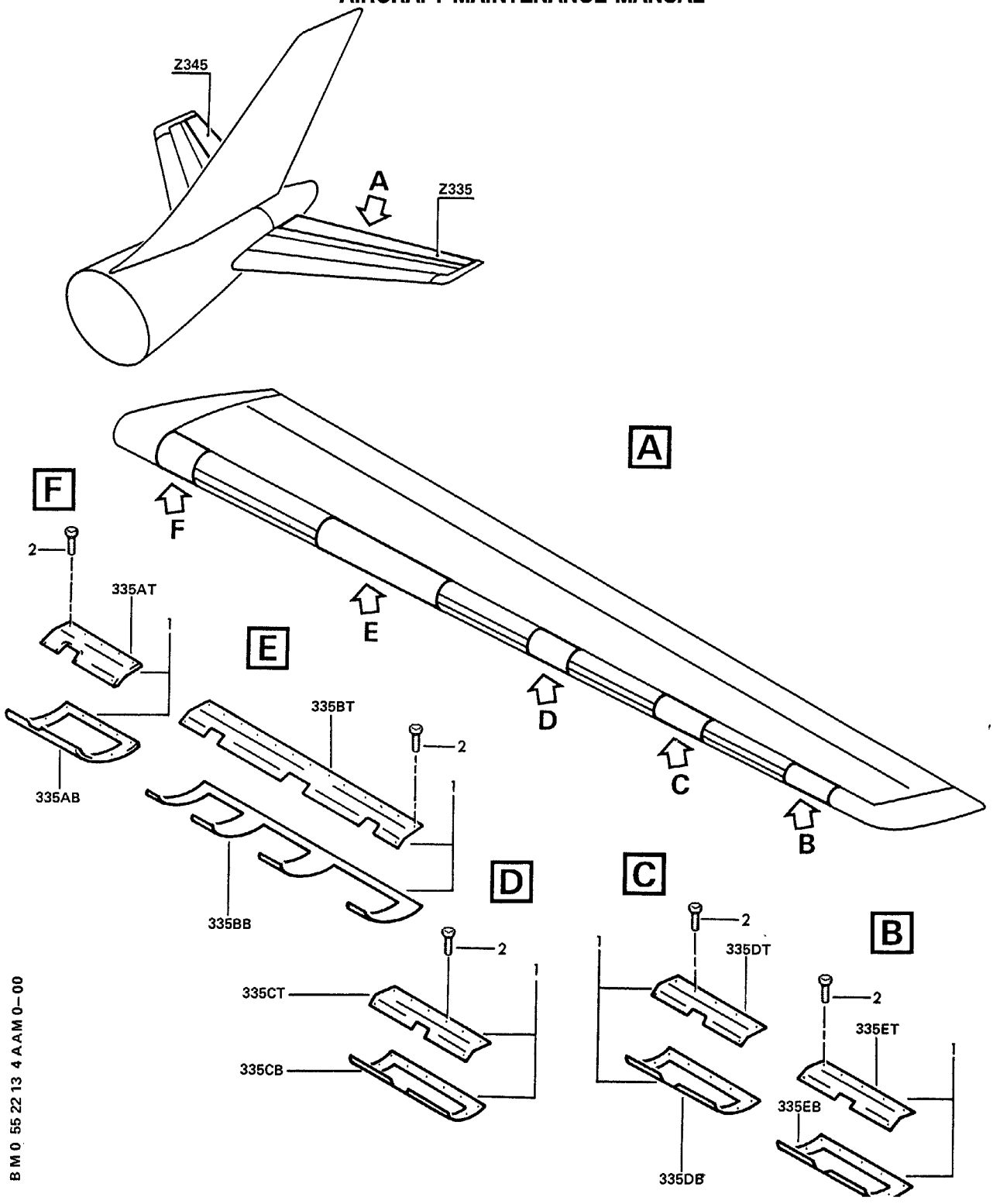
   A. Job Set-Up
      (1)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
      (2)Position access platform.
      (3)Remove trailing edge access panels (Ref. 55-13-13, P. Block 401) and trailing edge (Ref. 55-13-11, P. Block 401).

   B. Removal (Ref. Fig. 401)
      Elevator leading edge access panels to be removed are identified as follows:
      LH - Elevator - 335AT, BT, CT, DT, ET, AB, BB, CB, DB, EB.
      RH - Elevator - 345AT, BT, CT, DT, ET, AB, BB, CB, DB, EB.
      (1)Remove screws (2) and access panels (1).

   C. Preparation of Installation
      (1)Check sealant (Mat. No. 09-016) on mating surfaces of spar box for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
      (2)Apply separator agent (Mat. No. 05-013) to mating surfaces of panels (1) which contact spar box.

D. Installation (Ref. Fig. 401)
(1)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (2).
(2)Install access panels (1) and screws (2).
(3)If a new panel (1) has been installed, check that gaps between panel (1) and sparbox skin, and panel (1) and elevator leading sections do not exceed 3.0 mm (0.118 in.).
(4)Install trailing edge (Ref. 55-13-11, P. Block 401) and trailing edge access panels (Ref. 55-13-13, P. Block 401).
(5)Seal gaps between access panels (1) and spar box skin with sealant (Mat. No. 09-019).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.



Elevator Leading Edge Access Panels
Figure 401

ELEVATOR TIPS AND INBOARD END CAPS - DESCRIPTION AND OPERATION

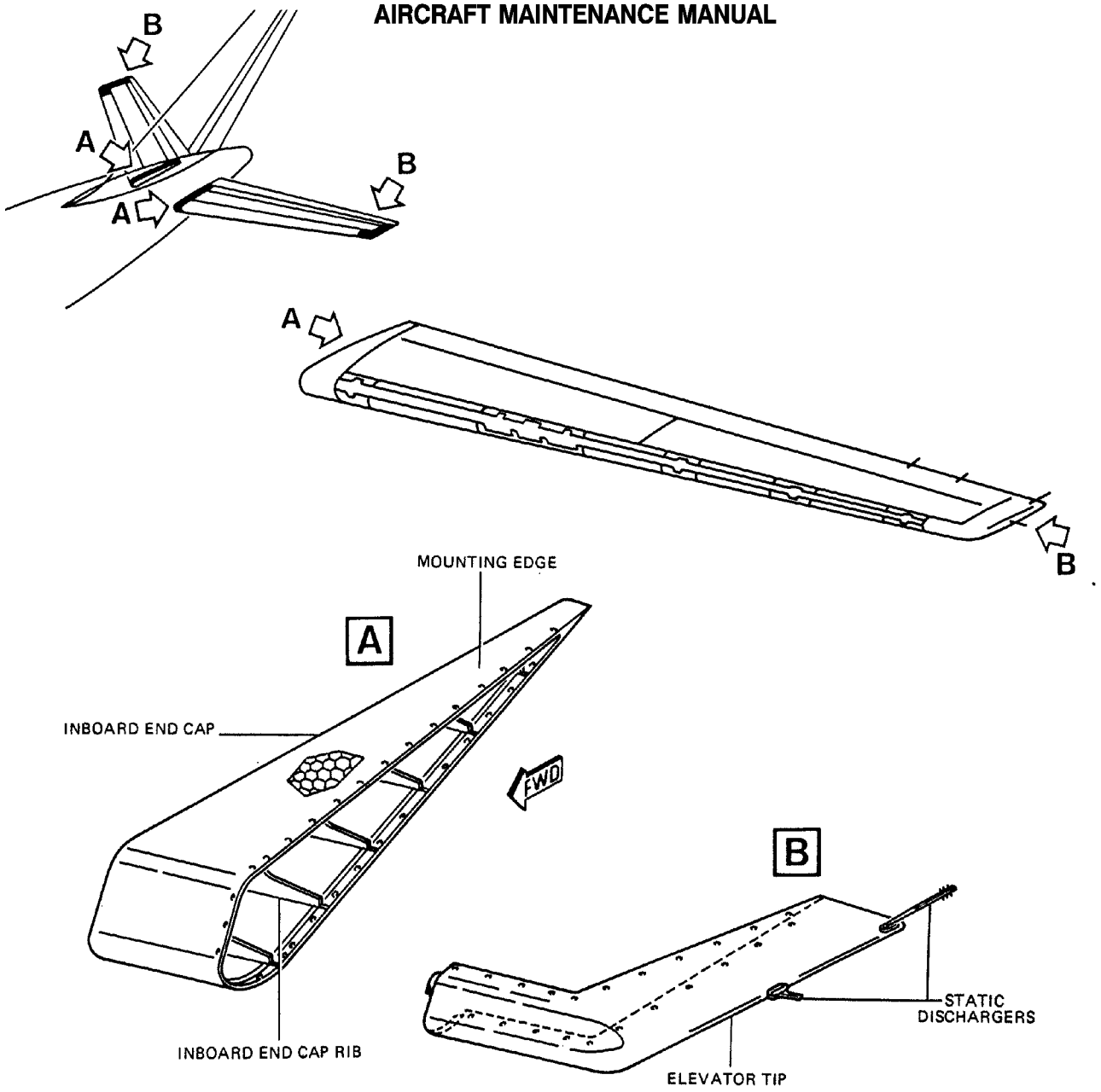
1. General

A. Each elevator has a tip attached to its outer end and an end cap attached to its inboard end. The tips and end caps are removable.

2. Description (Ref. Fig. 001)

R A. The end caps are made from honeycomb core bonded between GFRP
R laminates. The tips are made of aluminium sheets. The end caps are
R reinforced by GRP ribs. Cup washers are bonded along the mounting
R edges to reinforce the screw holes.

B. To allow the discharge of static electricity from the elevators, static dischargers (Ref. 23-61-00) are attached to each elevator tip.



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Elevator Tips
Figure 001

ELEVATOR TIPS AND INBOARD END CAPS - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, 5.5 and 6.5 m (18 ft. and 22 ft.)
B. 98A27307549000	Pin, Rigging, Elevator Control Bellcranks
C. Material No. 05-002	Special Materials (Ref. 20-31-00)
D. Material No. 05-013	Special Materials (Ref. 20-31-00)
E. Material No. 09-016	Sealants (Ref. 20-31-00)
F. Material No. 09-019	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 23-61-21, P. Block 401	Static Discharger Retainer
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
- 55-13-13, P. Block 401	Trailing Edge Access Panels
- 55-14-11, P. Block 401	Horizontal Stabilizer Tips

2. Procedure

A. Job Set-Up

(1)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove access panels 334CT, 344CT, 334AT/AB and 344AT/AB (Ref. 55-13-13, P. Block 401).
(4)Remove horizontal stabilizer tips (Ref. 55-14-11, P. Block 401).

B. Removal (Ref. Fig. 401)

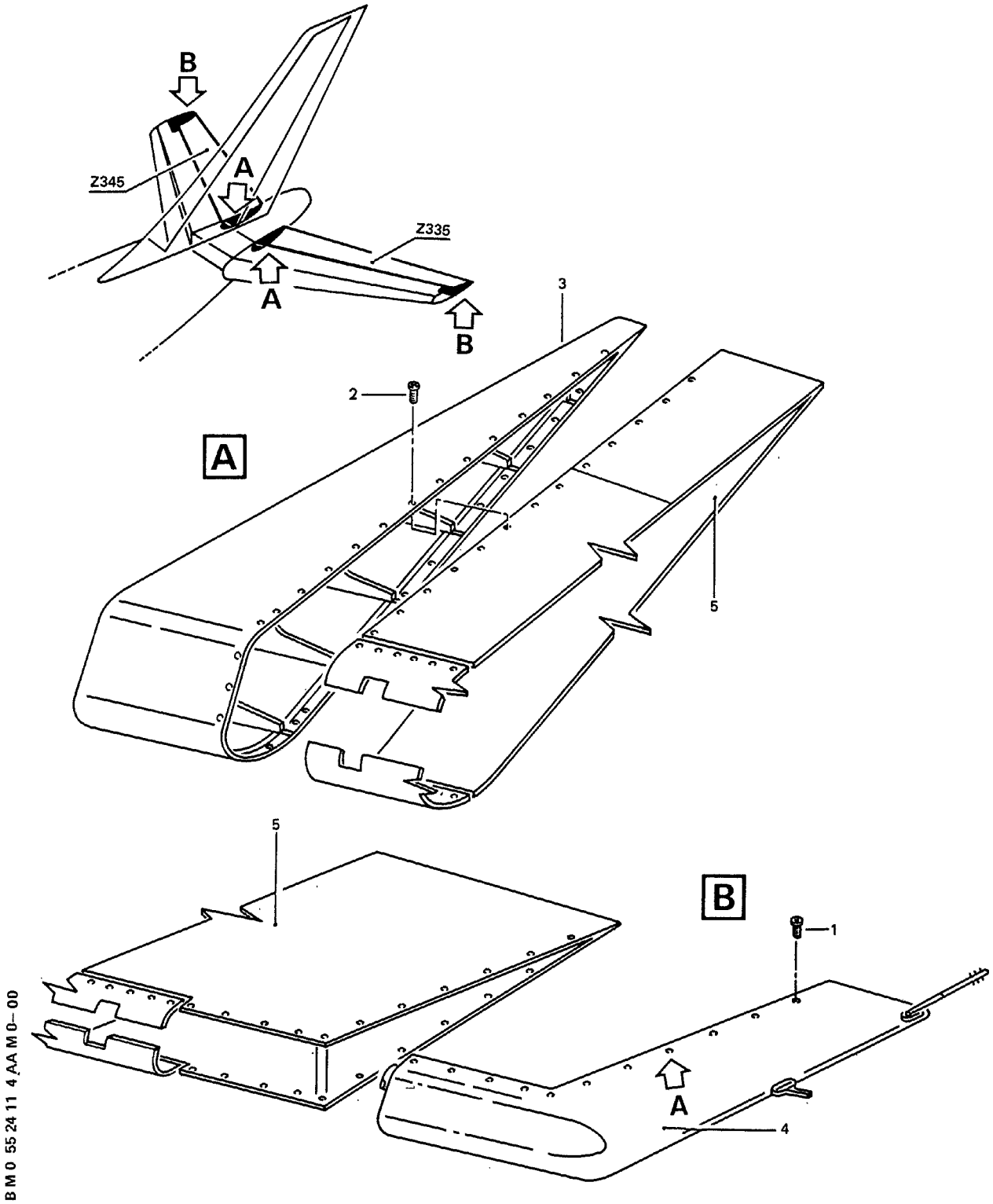
(1)Remove elevator tips (4).
(a)Remove screws (1).
(b)Remove elevator tips (4).
(2)Remove inboard end caps (3).
(a)Remove screws (2).
(b)Remove inboard end caps (3).

C. Preparation for Installation

(1)Check sealant (Mat. No. 09-016) on mating surfaces of elevator spar box (5) for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Check tip static dischargers for correct attachment (Ref. 23-61-21, P. Block 401).
(3)Check anchor nuts on elevator spar box (5) for damage and renew if necessary.
(4)Apply separator agent (Mat. No. 05-013) to mating surfaces of elevator tips (4) and inboard end caps (3).

D. Installation (Ref. Fig. 401)
(1)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (1, 2).
(2)Install inboard end caps (3).
(a)Position inboard end caps (3).
(b)Install screws (2).
(3)Install elevator tips (4).
(a)Position elevator tips (4).
(b)Install screws (1).
(4)Seal gaps between elevator tips (4) and elevator (5), and between inboard end caps (3) and elevator (5), with sealant (Mat. No. 09-019).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Install horizontal stabilizer tips (Ref. 55-14-11, P. Block 401).
(3)Install access panels 334CT, 344CT, 334AT/AB and 344AT/AB (Ref. 55-13-13, P. Block 401).
(4)Return horizontal stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
(5)Remove access platform.



Elevator Tips and Inboard End Caps
Figure 401

ATTACH FITTINGS - ELEVATOR - DESCRIPTION AND OPERATION

1. General

A. To provide attachment of the L and R elevators to the horizontal stabilizer, seven attach fittings are provided at the forward spar of the elevator spar box.

B. Attach fittings at hinges 1 and 7 are of identical failsafe design. Attach fittings at hinges 4 and 6 are also of identical design, but are not of failsafe construction. Attach fittings at hinges 2, 3 and 4 are similar in design and also provide attach points for the three elevator actuators.

C. Three hoisting points are provided on the upper surface of each L and R elevator.

2. Description and Operation (Ref. Fig. 001, 002, 003) (Ref. Fig. 004)

A. All elevator attach fittings are located on the forward spar of each elevator spar box, and are riveted to the forward spar through the flanges and to the respective elevator ribs through their webs.

B. The attach fittings at hinges 1 and 7 (Ref. Fig. 002) are each formed from three component parts, all machined from wrought aluminum alloy, bonded and riveted together.
(1) The center fork piece includes an aft-facing web which is riveted to the respective rib, and the L and R fork haves each have a flange which is riveted to the forward spar.
(2) On assembly of the three component pieces, the mating faces are sealed with sealing compound PR1422 or PR1431.
(3) Chrome-nickel steel bushes are press-fitted into the upper fork bores, to receive the elevator hinge arm connecting bolts.

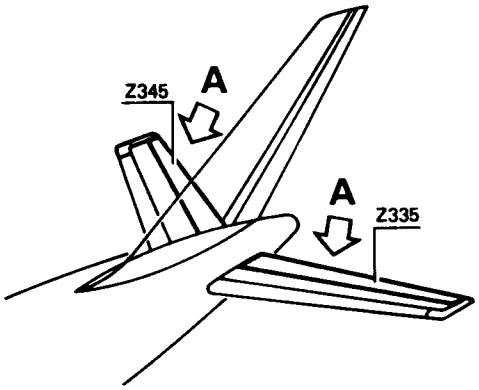
C. The attach fittings at hinges 5 and 6 (Ref. Fig. 002) are machined in one piece from wrought aluminum alloy.
(1) Chrome-nickel steel bushes are press-fitted into the upper fork bores, to receive the elevator hinge arm connecting bolts.

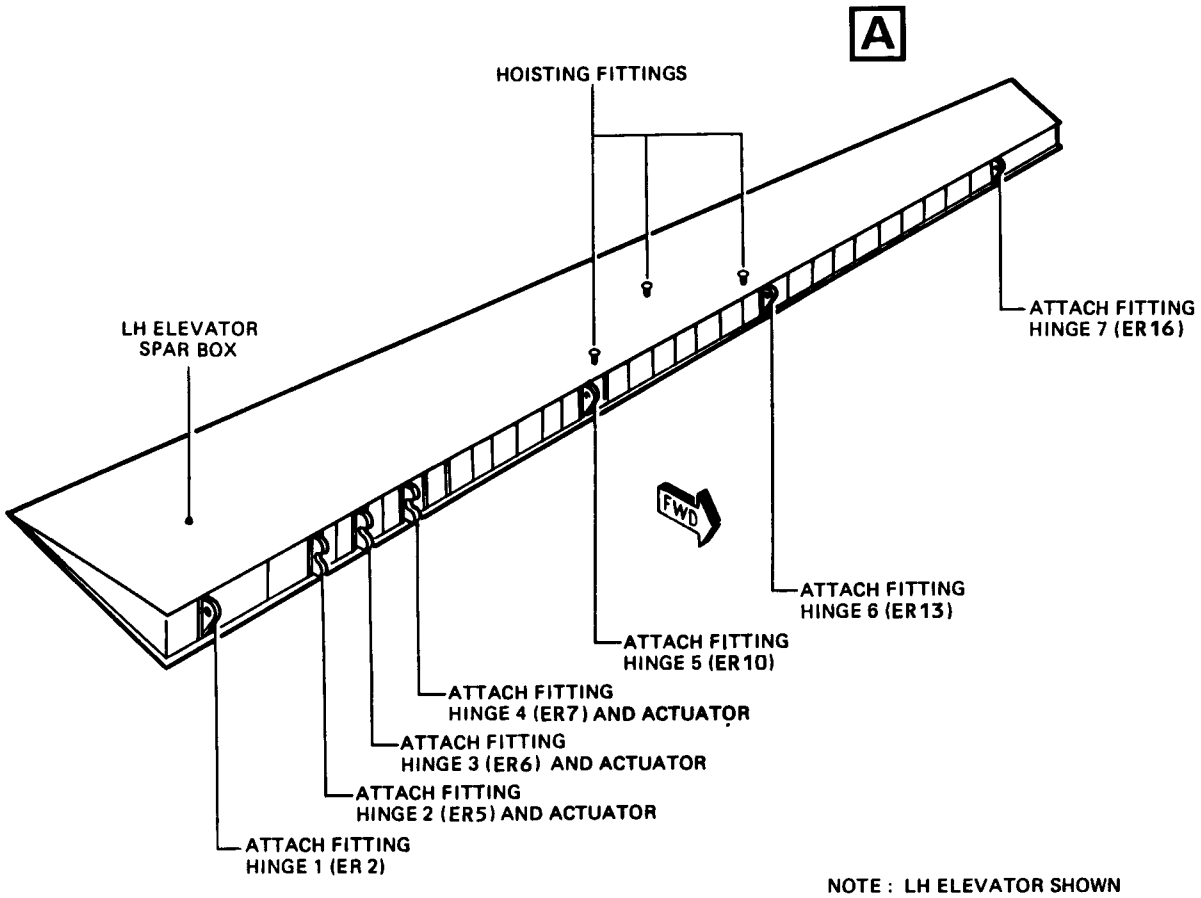
D. The attach fitting at hinge 3 (Ref. Fig. 003) is machined from an aluminum forging. Chrome-nickel steel bushes are press-fitted into the upper fork bores to receive the elevator hinge arm connecting bolts, and into the lower fork bores to receive the actuator connecting bolts.

E. The attach fittings at hinges 2 and 4 (Ref. Fig. 004) are of similar design, and are machined in one piece from light alloy.
(1) Chrome-nickel bushes are press-fitted into the upper fork bores to receive the elevator hinge arm connecting bolts, and into the lower fork bores to receive the actuator connecting bolts.
(2) On hinge attach fitting 4 (Ref. Fig. 004) an elevator stop fitting is mounted by setscrews between the upper and lower forks. This stop supports the elevator in the down position during removal of the

actuator connecting rods.

F. Hoisting Points (Ref. Fig. 001)
(1) Three hoisting fittings are fitted at the upper skin of each elevator spar box.
(2) Each hoisting fitting is machined from wrought aluminum alloy, and is fitted with a chrome-nickel alloy threaded insert, into which is screwed a titanium hoisting lug.
(3) The hoisting lug has an eye at one end for attachment of the hoisting sling, and a hexagonal socket at the other end.





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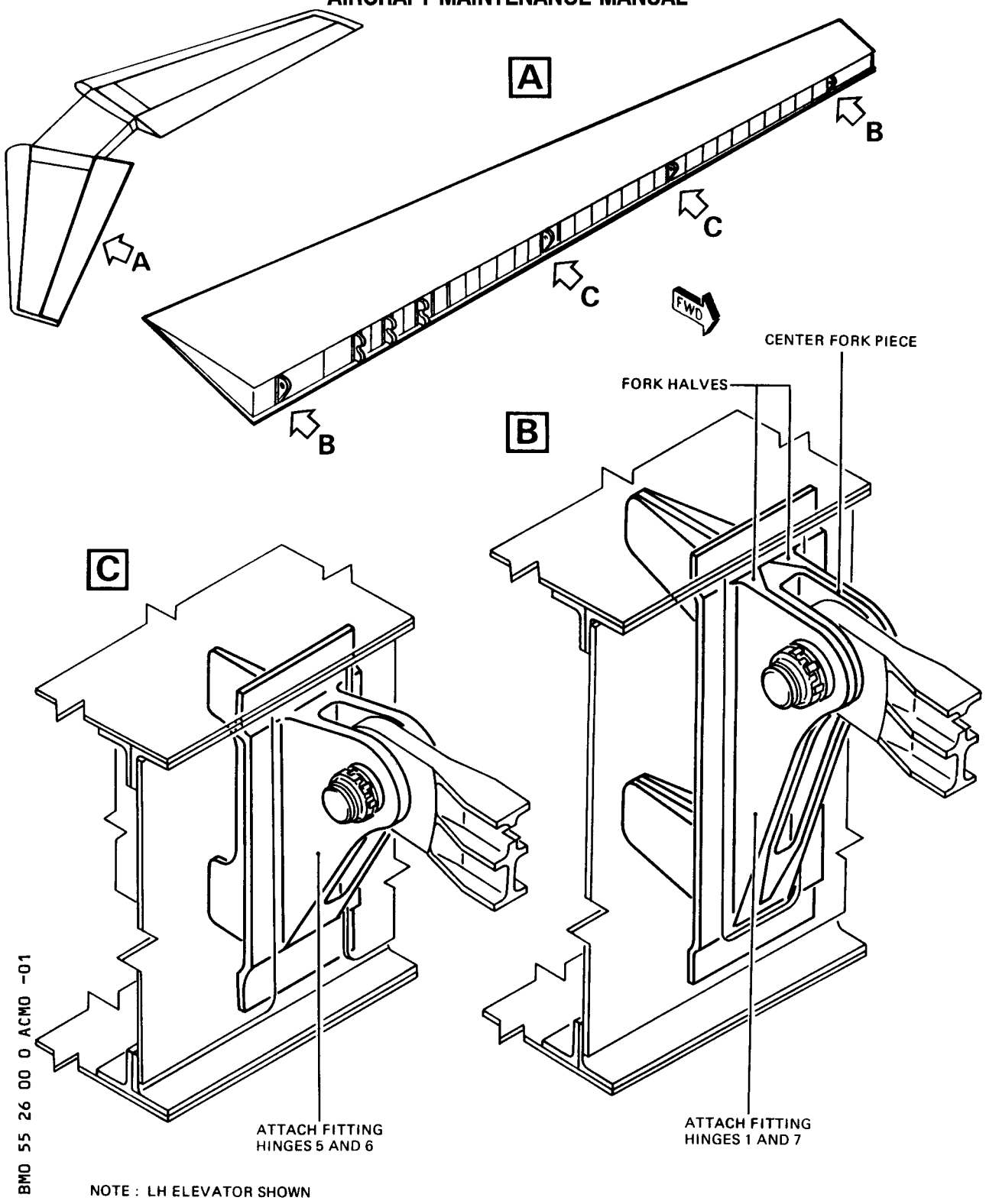
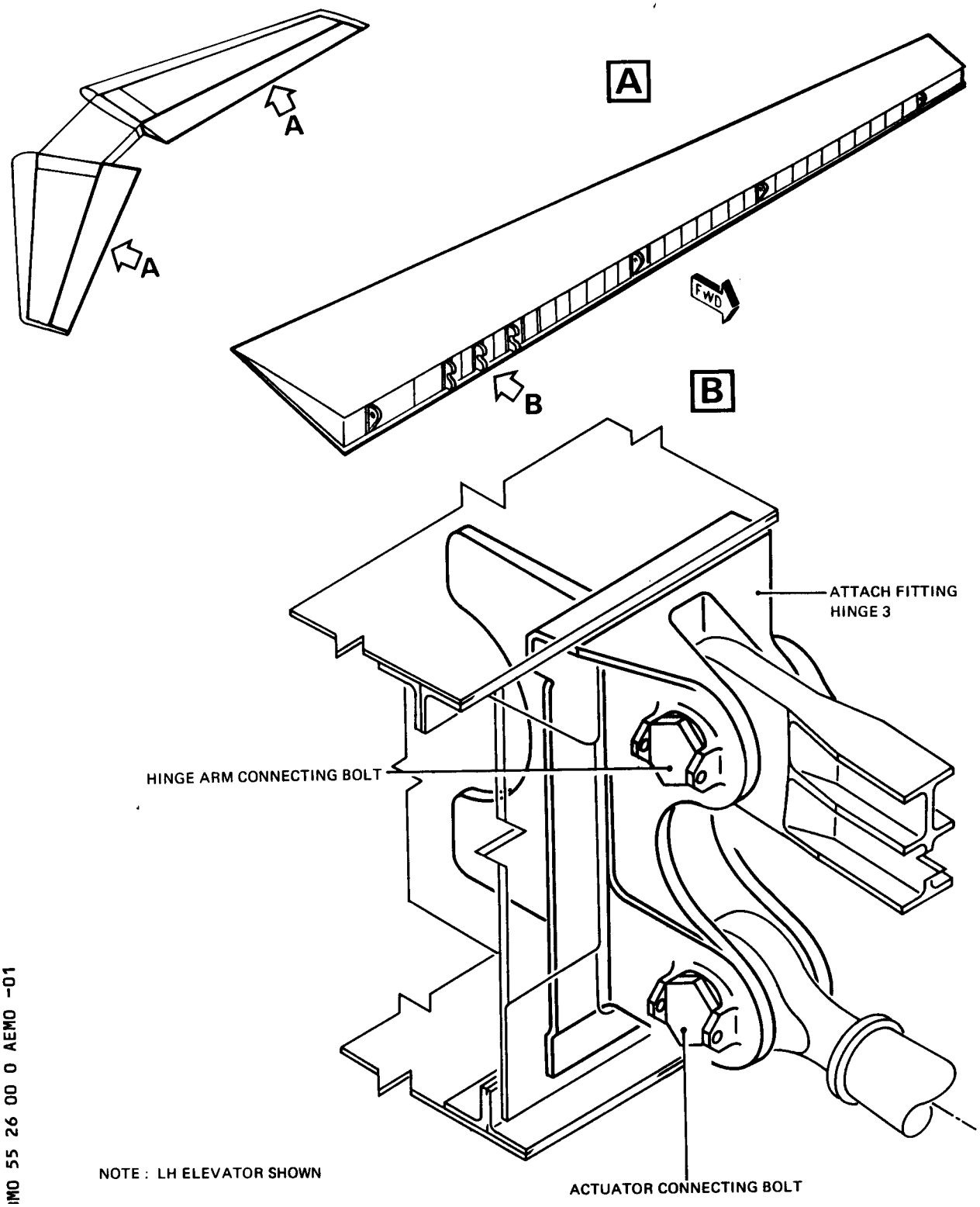
Elevator Attach Fittings
Figure 001

R



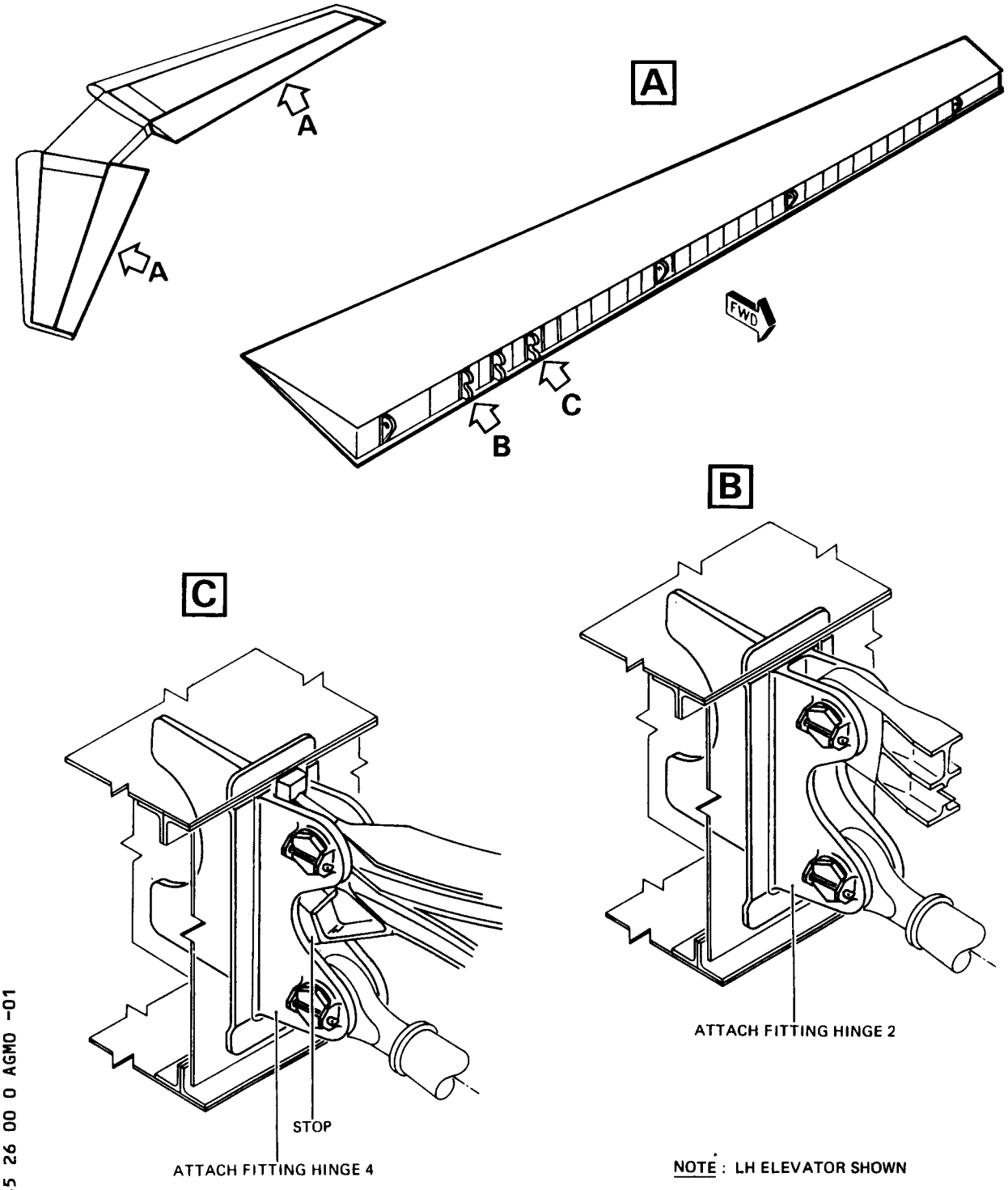
Elevator Attach Fittings - Hinges 1, 5, 6 and 7
Figure 002

R



Elevator Attach Fittings - Hinge 3
Figure 003

R



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Elevator Attach Fittings - Hinges 2 and 4
Figure 004

R

WARNING : STANDARD WARNING MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. Block 301).

NOTE : Should defect be suspected during the following inspection/check, a nondestructive test must be carried out.
If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

1. Attach Fittings - Visual Inspection

A. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, 5.5 and 6.5 m (18 and 21 ft.)
Referenced Procedures	
- 51-73-10, P. Block 801	Repair of Minor Damage
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers General - Standard Warnings and Procedures
- 55-13-13, P. Block 401	Trailing Edge Access Panels
- 55-22-13, P. Block 401	Leading Edge Access Panels

B. Pocedure

(1)Job Set-Up

(a)Make horizontal stabilizer safe (Ref. 55-00-00, P. Block 301).

(b)Position access platforms.

(c)Open or remove horizontal stabilizer trailing edge access panels (Ref. 55-13-13, P. Block 401).

(d)Remove elevator leading edge access panels (Ref. 55-22-13, P. Block 401).

(2)Inspection

(a)Damage limitations

1 Scratches (Ref. Fig. 601). For removal of scratches and marks refer to 51-73-10, P. Block 801.

R02 Marks: 5% of nominal material thickness over a maximum area of 400 mm² (0.62 sq.in.) is permissible.

3 Dents: not permissible.

4 Corrosion: 5% of material thickness over a maximum area of 400 mm² (0.62 sq.in.) is permissible, for removal of corrosion refer to 51-74-10, P. Block 801.

5 Damaged paintwork. For repair of damaged paintwork, refer to 51-75-10, P. Block 801.

6 Cracks not permissible.

(b)Inspect all attach fittings, and support attachments for scratches, marks, dents, corrosion, damaged paintwork, cracks and missing or loose rivets. If damage limitations are exceeded a structural repair

must be carried out, or component/fitting replaced. Pay particular attention to the following areas: (Ref. Fig. 602)

1 Attach fittings (1) and support structure at elevators STA 159/ER2.
2 Attach fittings (2) and support structure at elevator STA 256/ER5 and STA 291/ER6
3 Attach fittings (3) and support structure at elevator STA 323/ER7 stop fitting (4) and attachments.
4 Attach fittings (5) and support structure at elevator STA473/ER10
5 Attach fittings (6) and support structure at elevator STA 623/ER13.
6 Attach fittings (7) and support structure at elevator STA 813/ER16

(c) Make certain that elevator drain holes are clear.

1 Carry out detailed visual inspection of elevator hinge and servo control support fittings and surrounding structure at elevator RIBS 5, 6 and 7 forward of spar. (Ref. Fig. 603)

Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
	Dimension/assy mm (in.)		Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. clear mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
A.G							
ID 4	19 (0.7480)	19.02 (0.7488)	0	0.034 (0.0013)		19.05 (0.750)	0.1651 (0.0065)
OD 3	18.897 (0.7445)	19.00 (0.7480)			18.8849 (0.7440)		
ID 3	15.875 (0.6250)	15.893 (0.6257)	0.014 (0.0006)	0.038 (0.0015)		15.9258 (0.6270)	0.0889 (0.0035)
OD 2	15.855 (0.6242)	15.861 (0.6244)			15.8369 (0.6235)		
ID 2	11.4 (0.4488)	11.5 (0.4527)	0.2 (0.0079)	0.4 (0.0157)		11.5316 (0.4540)	0.4445 (0.0175)
OD 1	11.1 (0.4370)	11.2 (0.4409)			11.087 (0.4365)		

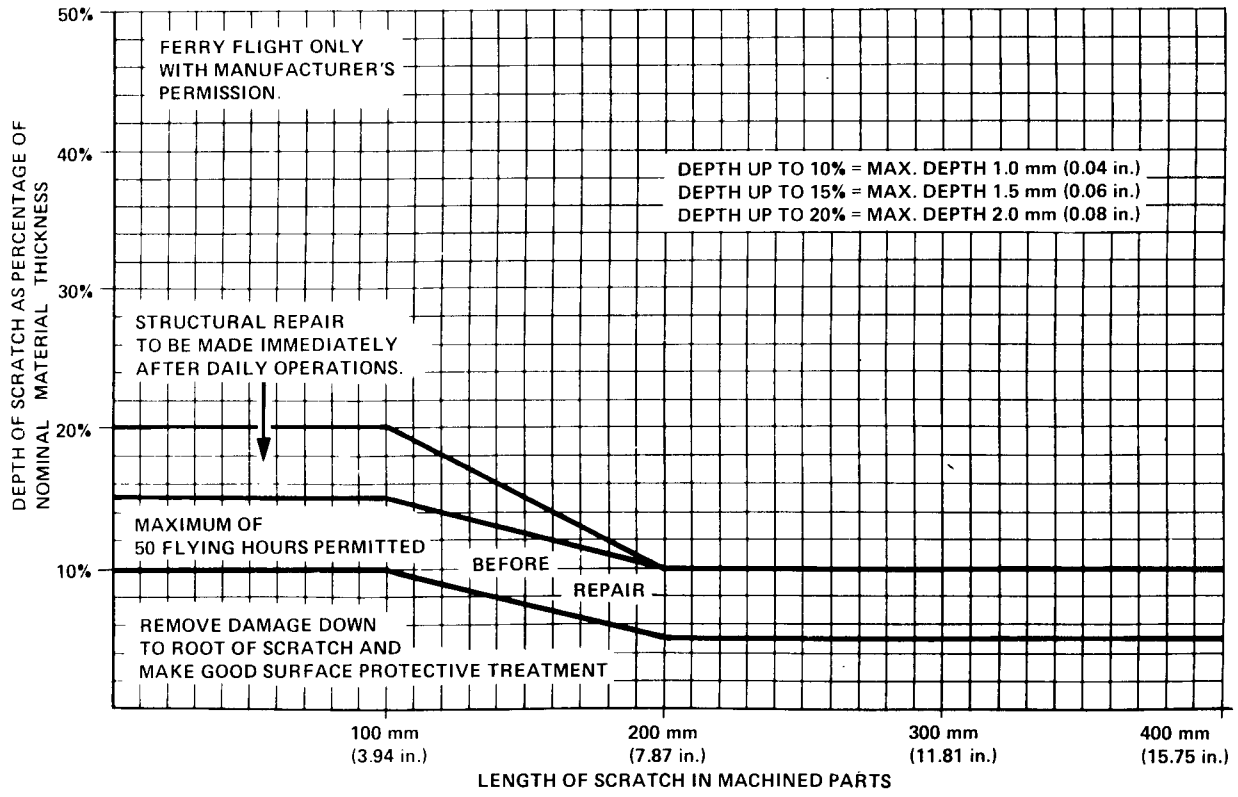
Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
	Dimension/assy mm (in.)		Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. clear mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
B.D	UPPER						
ID 7	26 (1.0236)	26.021 (1.0244)	0	0.034 (0.0013)		26,0477 (1.0255)	0.0635 (0.0025)
OD 6	26 (1.0236)	26.034 (1.0249)			25.9842 (1.0230)		
ID 6	22.225 (0.8750)	22.246 (0.8758)	0.013 (0.0005)	0.041 (0.0016)		22.2758 (0.8770)	0.0889 (0.0035)
OD 5	22.205 (0.8742)	22.212 (0.8744)			*22.1869 (0.8735)		
BCD	LOWER						
ID10	26 (1.0236)	26.021 (1.0244)	0	0.034 (0.0013)		26.0477 (1.0255)	0.0635 (0.0025)
OD 9 12	26 (1.0236)	26.034 (1.0244)			25.9842 (1.023)		
ID11	25.8 (1.0157)	26.2 (1.0315)	-0.234 (-0.0092)	0.2 (0.0079)	25.9842 (1.0230)	26.2382 (1.0330)	0.254 (0.01)
OD 9	26 (1.0236)	26.034 (1.0249)					

Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
	Dimension/assy mm (in.)		Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. clear mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
ID 9	22.225	22.246				22.2758	
12	(0.8750)	(0.8758)	0.013	0.041		(0.8770)	0.0889
OD 8	22.205	22.212	(0.0005)	(0.0016)	*22.1869		(0.0035)
	(0.8742)	(0.8744)			(0.8735)		
C.UPPER							
ID16	26	26.021				26.0477	
	(1.0236)	(1.0244)	0	0.034		(1.0255)	0.0635
OD15	26	26.034		(0.0013)	25.9842		(0.0025)
	(1.0236)	(1.0249)			(1.0230)		
ID15	22.225	22.246				22.2758	
	(0.8750)	(0.8758)	0.014	0.041		(0.8770)	0.0889
OD14	22.205	22.212	(0.0005)	(0.0016)	22.1869		(0.0035)
	(0.8742)	(0.8744)			(0.8735)		
ID14	15.881	15.899				15.9258	
	(0.6252)	(0.6259)	0.022	0.051		(0.6270)	0.0889
OD13	15.848	15.859	(0.0008)	(0.0020)	*15.8369		(0.0035)
	(0.6239)	(0.6243)			(0.6235)		

Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
	Dimension/assy mm (in.)		Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. clear mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
E.F							
ID19	19 (0.7480)	19.021 (0.7488)	0	0.034 (0.0013)		19.05 (0.750)	0.0635 (0.0025)
OD18	19 (0.7480)	19.034 (0.7493)			18.9865 (0.7475)		
ID18	15.875 (0.6250)	15.893 (0.6257)	0.014 (0.0005)	0.038 (0.0014)		15.9258 (0.6270)	0.0889 (0.0035)
OD17	15.855 (0.6242)	15.861 (0.6244)			*15.8369 (0.6235)		

*Units annotated with an * asterisk only, apply while there is a thickness of chrome plating remaining on the bearing surface.

(3) Close Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Install elevator leading edge access panels (Ref. 55-22-13, P. Block 401).
(c)Install horizontal stabilizer trailing edge access panels (Ref. 55-13-13, P. Block 401).
(d)Remove access platforms.
(e)Return stabilizers to operating condition (Ref. 55-00-00, P. Block 301).



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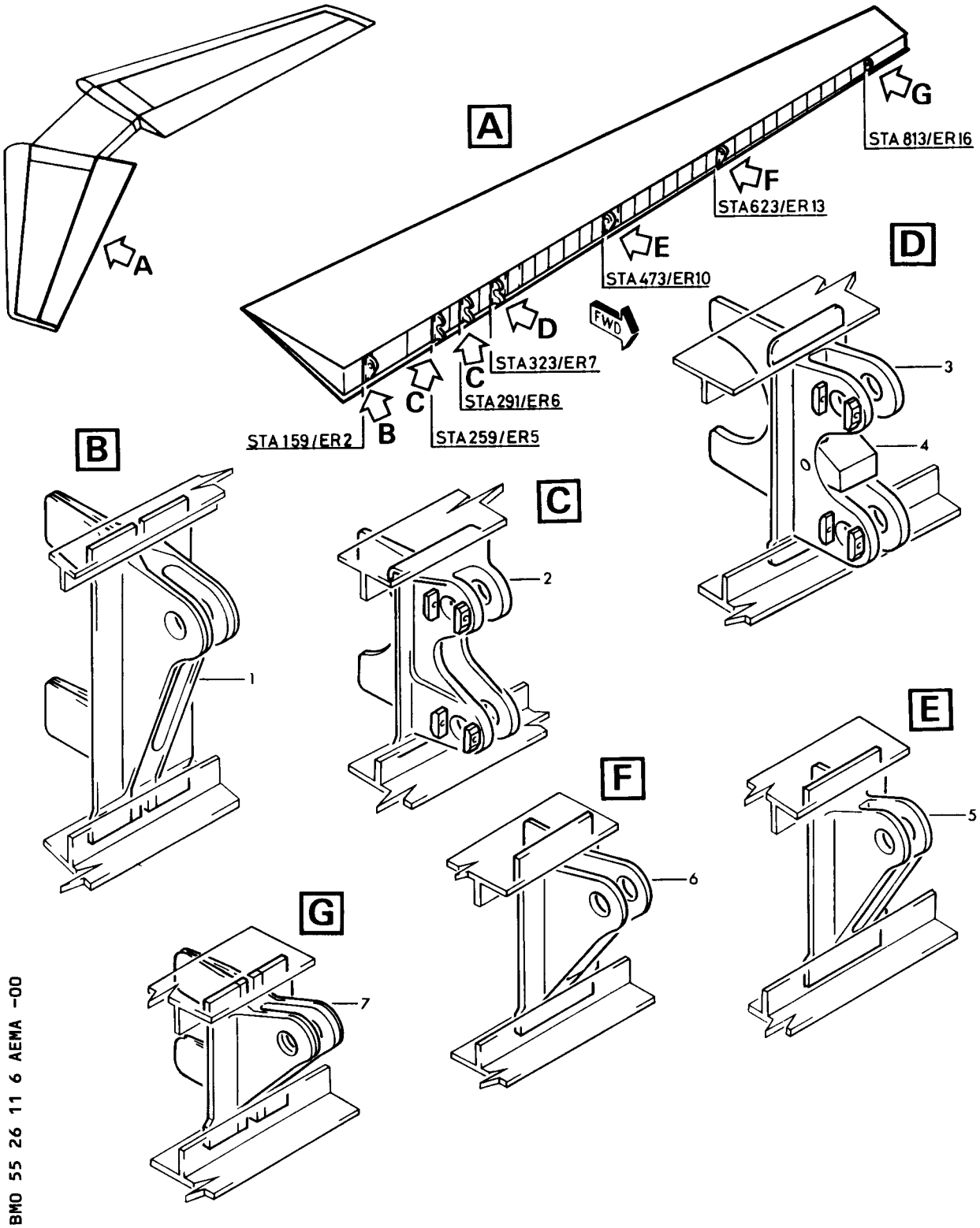
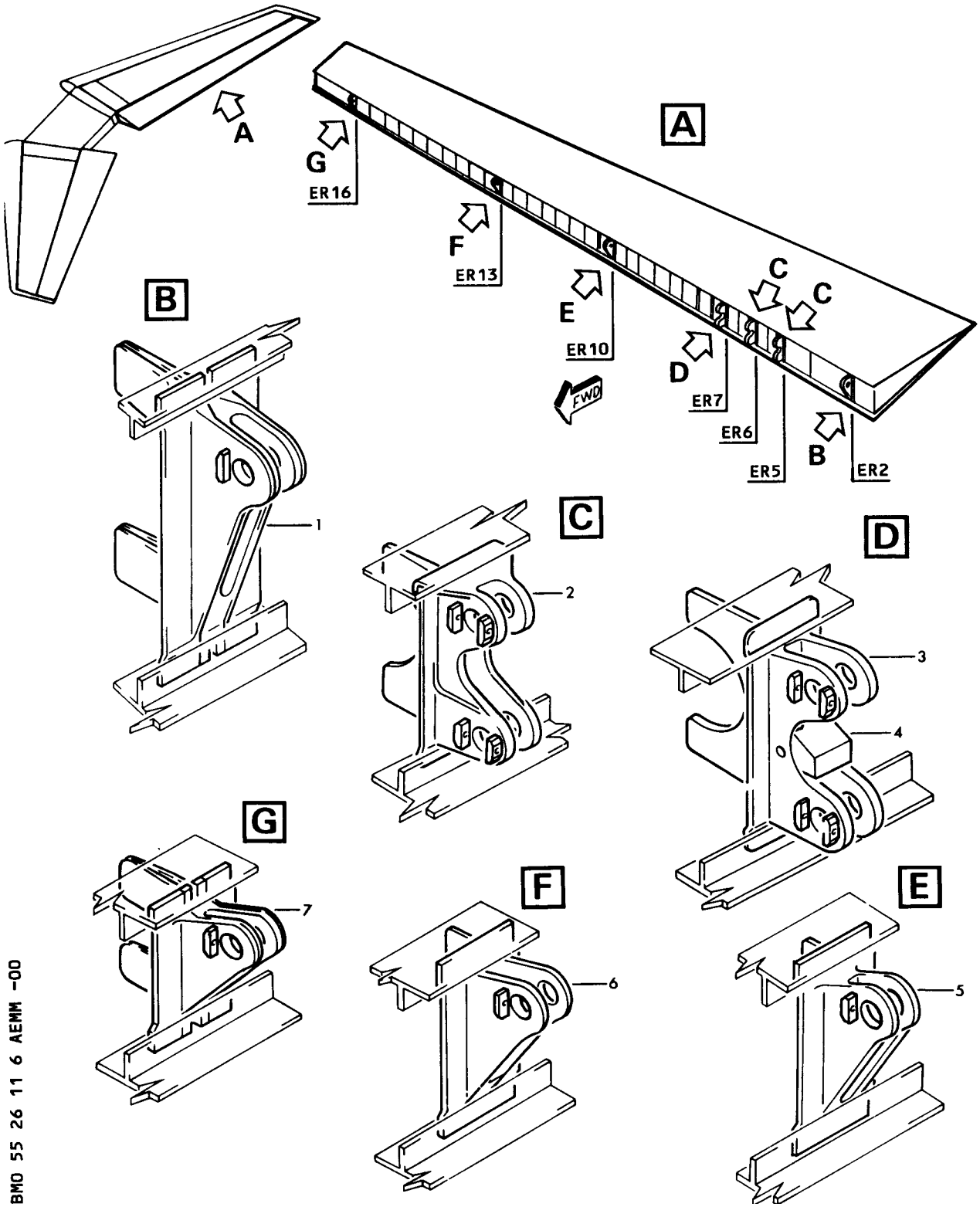
Scratch Limitation
Figure 601

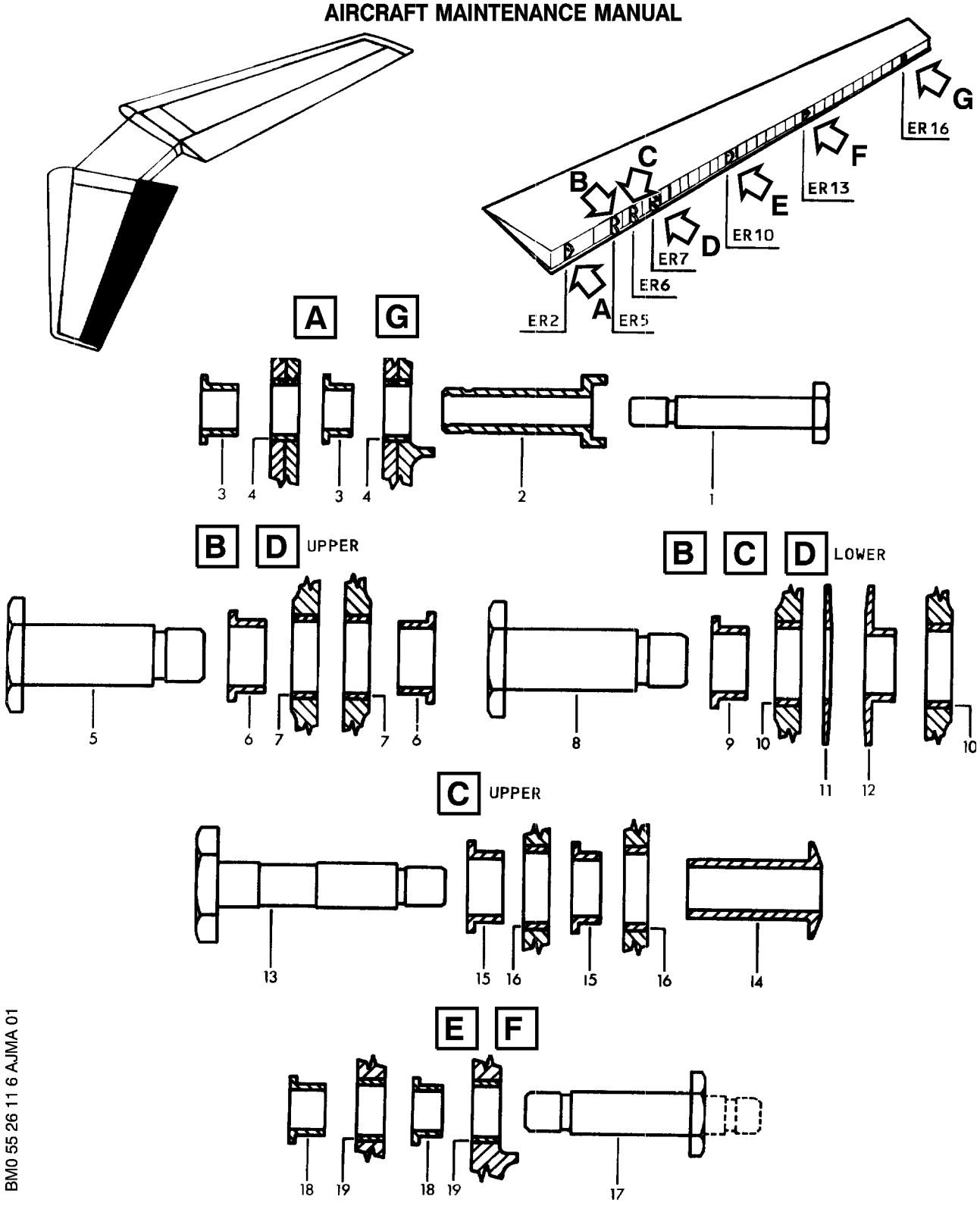


Elevator Attach Fittings LH Side (Sheet 1/2)
Figure 602

R



Elevator Attach fittings RH Side (Sheet 2/2)
Figure 602



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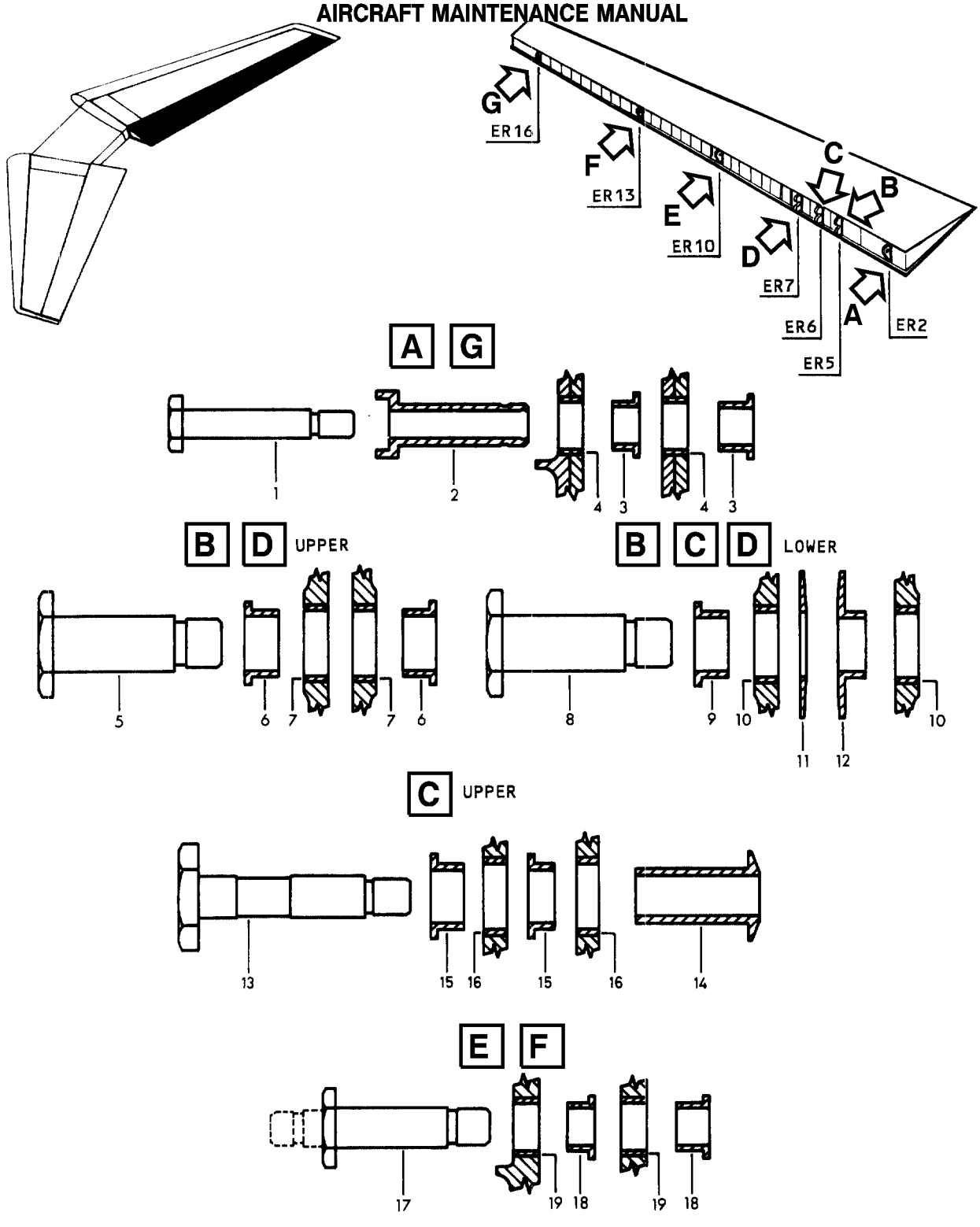
Elevator Attach Fittings Detail LH Side (Sheet 1/2)
Figure 603

R



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Elevator Attach Fittings Detail RH Side (Sheet 2/2)
Figure 603

R

VERTICAL STABILIZER - DESCRIPTION AND OPERATION

1. General

A. The vertical stabilizer is a removable unit, attached to the rear fuselage. It provides supporting structure for the rudder and the three servo controls which operate the rudder.

2. Component Location

(Ref. Fig. 001)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	TIP		324		55-34-00
	EDGE-TRAILING		325		55-33-00
	FITTINGS-ATTACH		323		55-36-00
	BOX-SPAR		323		55-31-00
	EDGE-LEADING		322		55-32-00

3. Description

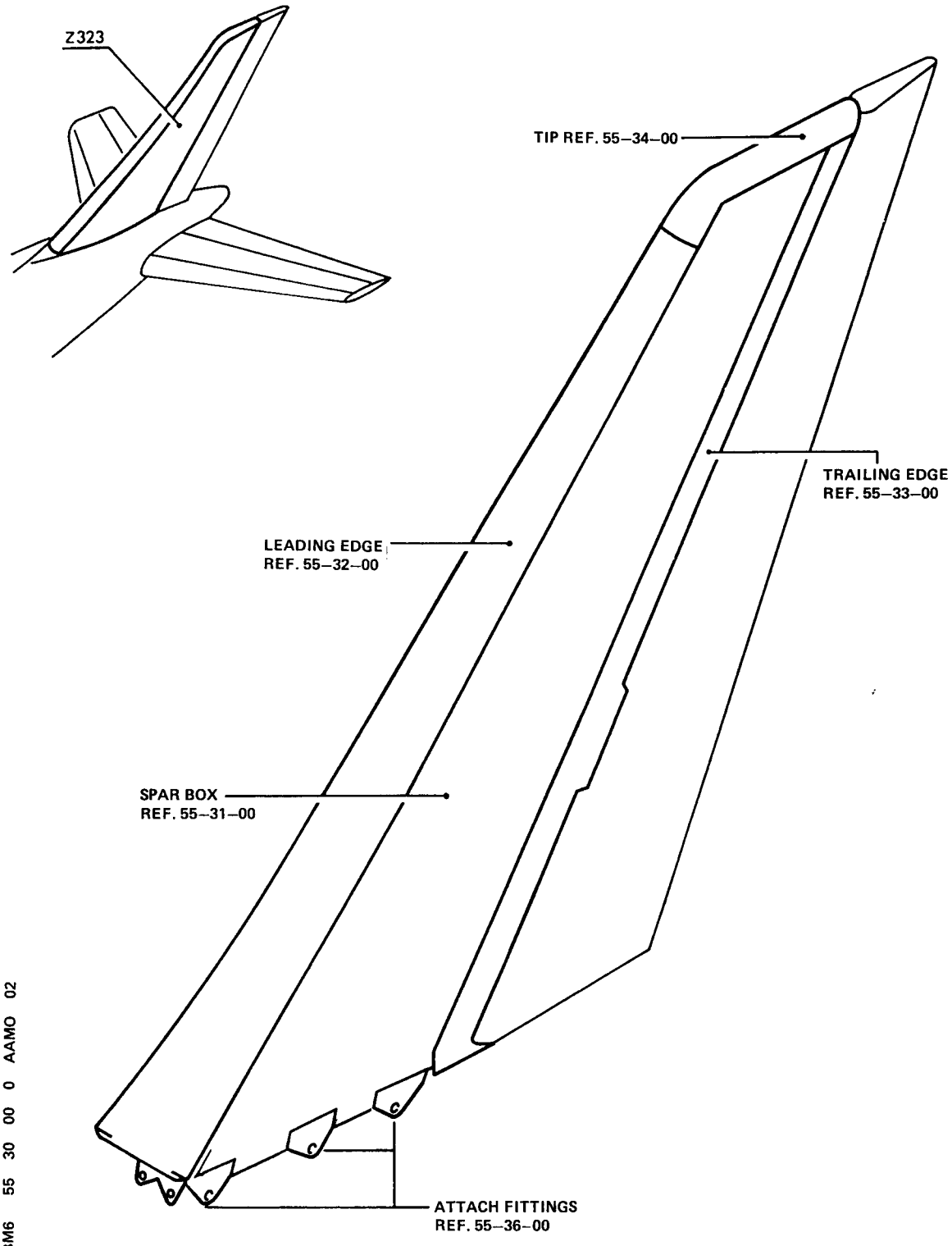
A. The vertical stabilizer comprises a spar box, leading edge, trailing edge and tip.

R **ON A/C 001-005, 102-200,

B. The leading edge and tip are made from resin fiber composite with honeycomb core, and are removable from the spar box, which is the main structural component. The trailing edge comprises a light alloy framework riveted to the rear spar, and access panels. The vertical stabilizer is attached to the fuselage by attach fittings and transverse load fittings. The rudder is attached to the vertical stabilizer by hinge fittings which are attached to the rear spar.

R **ON A/C 006-101,

B. The leading edge and tip are made from resin fiber composite with honeycomb core, and are removable from the spar box, which is the main structural component. The trailing edge comprises a light alloy framework riveted to the rear spar, and access panels. The vertical stabilizer is attached to the fuselage by attach fittings and transverse load fittings. The rudder is attached to the vertical stabilizer by hinge arms which are attached to the rear spar.



R VERTICAL STABILIZER
Figure 001

WARNING: STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).
WARNING: CUTOUTS OF RIBS ARE SHARP-EDGED. BEFORE WORKING INSIDE VERTICAL STABILIZER SPARBOX, PROTECT EDGES OF CUTOUTS. WEAR GLOVES AND PROTECTIVE OVERALLS.

1. Vertical Stabilizer - Access Precautions

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform, 5.5 m (18 ft.)
(2)98A55307516000	Ladder - Access, Vertical Stabilizer
(3)	Cutout Protection
(4)	Gloves
(5)	Overalls
Referenced Procedure - 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures

B. Procedure

(1)Job Set-Up

(a)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

(b)Position access platform.

(c)Open equipment compartment access door 312AR.

(d)Open vertical stabilizer access doors as required:

CAUTION: ONLY ONE PERSON MAY STAND ON ONE RIB. AT OPEN FRAME RIBS STEP ON BRACES ONLY AT FULL WEB RIBS STEP ON STIFFENERS AROUND CUTOUTS ONLY (Ref. Fig. 301).

1 Open door 311AZ to gain access to:
- Internal structure
- Hydraulic lines of blue system
- HF-coupler
- Flight control rods

2 Position access ladder P/N 98A55307516000.

3 Open door 311BZ to gain access to:
- Internal structure
- Flight control rods

WARNING: PROTECT CUTOUTS OF RIBS AND WEAR GLOVES BEFORE WORKING INSIDE VERTICAL STABILIZER.

(e)Protect cutouts of ribs.

(2)Close-Up

(a)Remove cutout protection.

(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

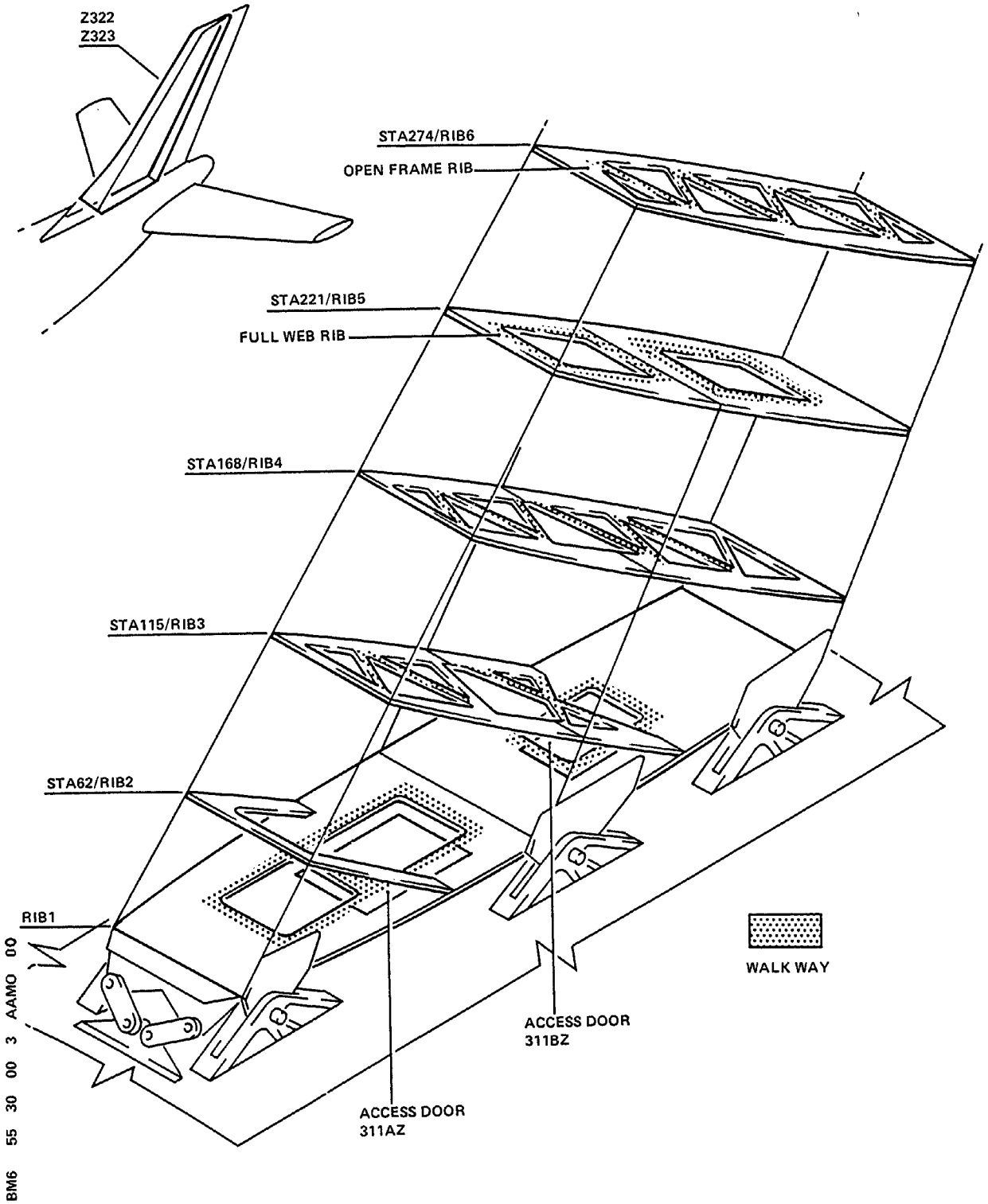
(c)Close vertical stabilizer access doors 311AZ and 311BZ.

(d)Remove access ladder.

(e)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).

(f)Close equipment compartment access door 312AR.

(g)Remove access platform.



Vertical Stabilizer - Walkway
Figure 301

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

WARNING : SPECIAL ACCESS PRECAUTIONS MUST BE OBSERVED BEFORE WORKING INSIDE COMPOSITE VERTICAL STABILIZER (REF. 55-30-00, P. BLOCK 301).

CAUTION : PERCENTAGE (%) OF ALLOWABLE DAMAGE IS ALWAYS RELATED TO THE NOMINAL MATERIAL THICKNESS AS SPECIFIED IN SRM (STRUCTURAL REPAIR MANUAL).

CAUTION : TO PREVENT FURTHER DEGRADATION, MAKE CERTAIN THAT PAINT COATING OF COMPOSITE STRUCTURE IS RESTORED IF DAMAGED (REF. 51-75-10, P. BLOCK 801).

NOTE : Should a defect be suspected during the following inspection/check, an approved nondestructive test must be carried out.
If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

1. Vertical Stabilizer - Inspection/Check

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platforms, 5.5 and 6.5 m (18 and 21 ft.)
(2)98A55307516000	Ladder - Access, Vertical Stabilizer
(3)	Nondestructive Test Equipment
(4)Material No. 05-027	Special Materials (Ref. 20-31-00)

Referenced Procedures

- 51-75-10, P. Block 801	Repair of Paint Coatings
- 51-77-10, P. Block 801	Repair of Composite Components
- 53-10-67, P. Block 401	Vertical Stabilizer Dorsal Fin
- 53-10-69, P. Block 401	Vertical Stabilizer Side Fairings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-30-00, P. Block 301	Vertical Stabilizer - Access Precautions
- 55-30-00, P. Block 801	Vertical Stabilizer
- 55-32-11, P. Block 401	Vertical Stabilizer Leading Edge
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-34-11, P. Block 401	Vertical Stabilizer Tip
	NTM - Nondestructive Testing Manual
	SRM - Structural Repair Manual

B. Procedure

(1)Job Set-Up

(a)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

WARNING: SPECIAL ACCESS PRECAUTIONS MUST BE OBSERVED.

(b)Before entering composite vertical stabilizer observe special access precautions (Ref. 55-30-00, P. Block 301).

(c)Position access platforms.

(d)Open equipment compartment access door 312AR.

(e)Open vertical stabilizer access door 311AZ.

(f)Position access ladder P/N 98A55307516000 and open vertical stabilizer access door 311BZ.

(g)Remove dorsal fin (Ref. 53-10-67, P. Block 401).

(h)Remove side fairings (Ref. 53-10-69, P. Block 401).

(j)Remove vertical stabilizer leading edge (Ref. 55-32-11, P. Block 401).

(k)Remove erosion protection tape from the leading edge panels (Ref. 55-30-00, P. Block 801).

NOTE : This step is only applicable if erosion protection tape is installed.

(l)Remove vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).

(m)Remove vertical stabilizer tip (Ref. 55-34-11, P. Block 401).

(2)Inspection/Check

(a)The following areas have specific damage criteria:

1 Spar box skin panels including stringer outer flange.

2 Stringer inner flange.

3 Spars and Ribs.

4 Leading edge, tip and trailing edge panels (nonmetallic parts) (Ref. Fig. 601).

5 For the damage limits for steps 1 thru to 4 refer to the SRM 55-30-00, P. Block 101.

(b)Should stated limits be exceeded, a structural repair must be carried out.

1 For the repair of paint coatings, refer to 51-75-10, P. Block 801.

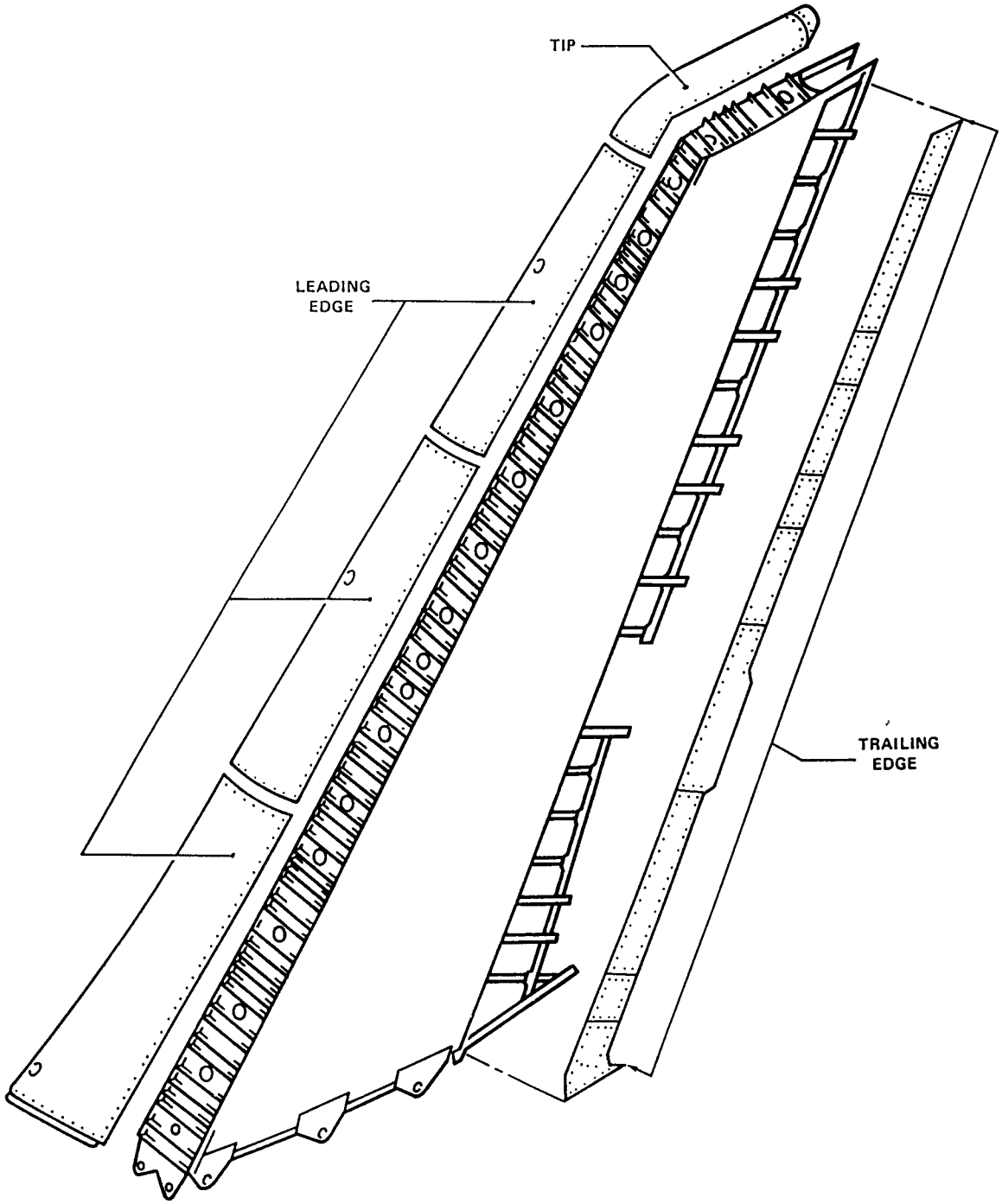
2 For the removal of scratches, marks and dents, refer to 51-77-10, P. Block 801.

(c)Inspect all structural components and areas for damage, abrasions, scratches and delaminations.

1 Pay special attention to the following:

- Vertical stabilizer skin panels LH and RH from front to rear spar and from fin/fuselage fairing to top, external surface.
- Vertical stabilizer rear spar aft face including supports for rudder hinge arm.
- Vertical stabilizer front spar forward face including tip.
- Vertical stabilizer center box internal structure.
- Forward, center and aft vertical stabilizer to fuselage attach and transverse load fittings.

(d)Visually inspect the rudder servo actuator attachment fittings and structure for distortion and cracks due to de-synchronization.



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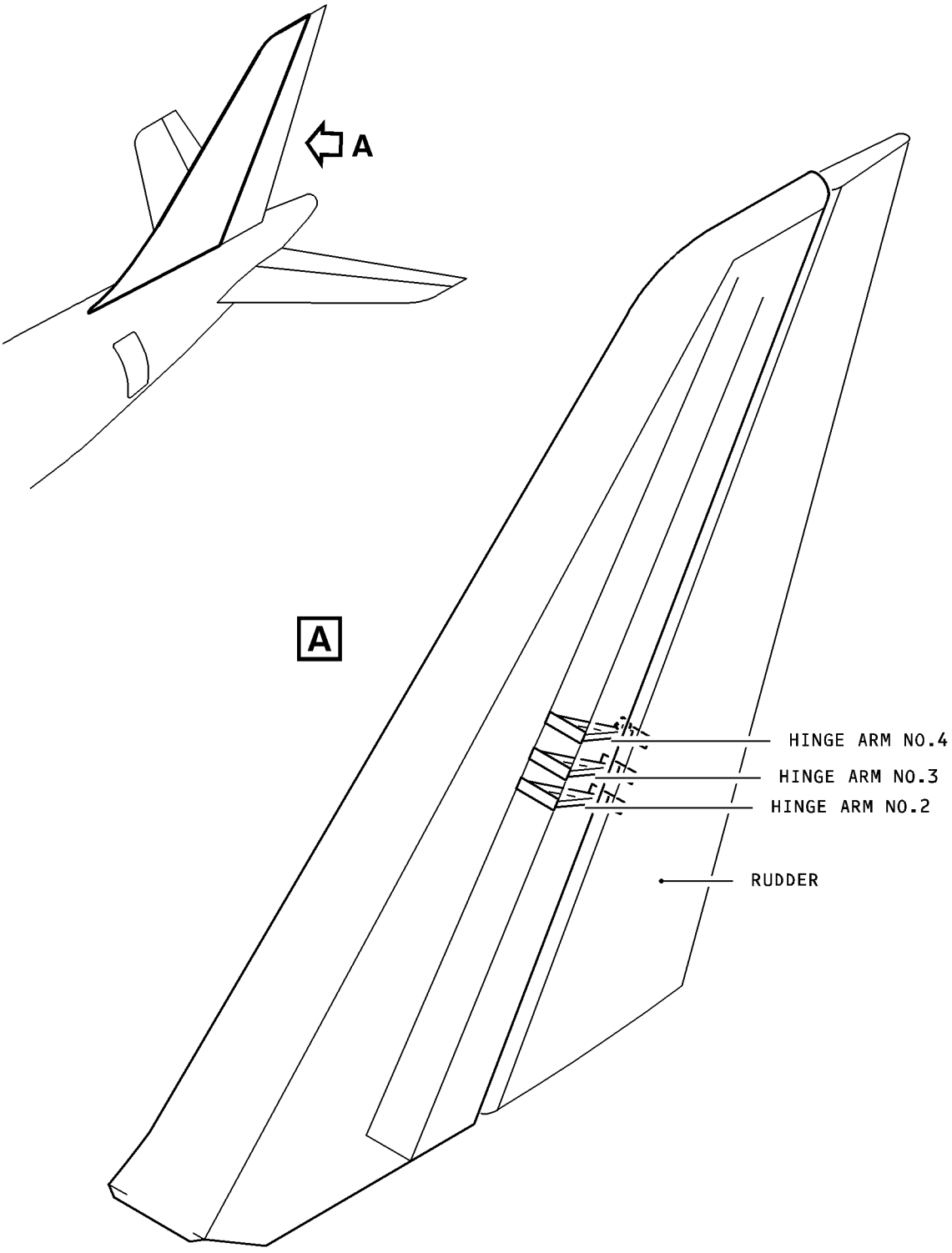
Leading Edge, Tip and Trailing Edge Panels
Figure 601

(Ref. Fig. 602)



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Inspection of the attachment fittings
of the vertical stabilizer
Figure 602

(3)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Check coating of moisture-removing oil (Mat. No. 05-027) for good condition on all surfaces of metal items and renew as necessary (Ref. 51-75-10, P. Block 801).
(c)Install vertical stabilizer tip (Ref. 55-34-11, P. Block 401).
(d)Install vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).
(e)Install vertical stabilizer leading edge (Ref. 55-32-11, P. Block 401).
(f)Install erosion protection tape on the leading edge panels (Ref. 55-30-00, P. Block 801).
NOTE : This step is only applicable where erosion protection tape is specified.
(g)Install side fairings (Ref. 53-10-69, P. Block 401).
(h)Install dorsal fin (Ref. 53-10-67, P. Block 401).
(j)Close vertical stabilizer access doors 311AZ and 311BZ.
(k)Remove access ladder.
(l)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(m)Close equipment compartment access door 312AR.
(n)Remove access platforms.

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. Block 301).

WARNING : SPECIAL ACCESS PRECAUTIONS MUST BE OBSERVED BEFORE WORKING INSIDE COMPOSITE VERTICAL STABILIZER (REF. 55-30-00, P. BLOCK 301).

CAUTION : PERCENTAGE (%) OF ALLOWABLE DAMAGE IS ALWAYS RELATED TO THE NOMINAL MATERIAL THICKNESS AS SPECIFIED IN SRM (STRUCTURAL REPAIR MANUAL).

CAUTION : TO PREVENT FURTHER DEGRADATION, MAKE CERTAIN THAT PAINT COATING OF COMPOSITE STRUCTURE IS RESTORED IF DAMAGED (REF. 51-75-10, P. BLOCK 801).

NOTE : Should a defect be suspected during the following inspection/check, an approved nondestructive test must be carried out.
If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

1. Vertical Stabilizer - Inspection/Check

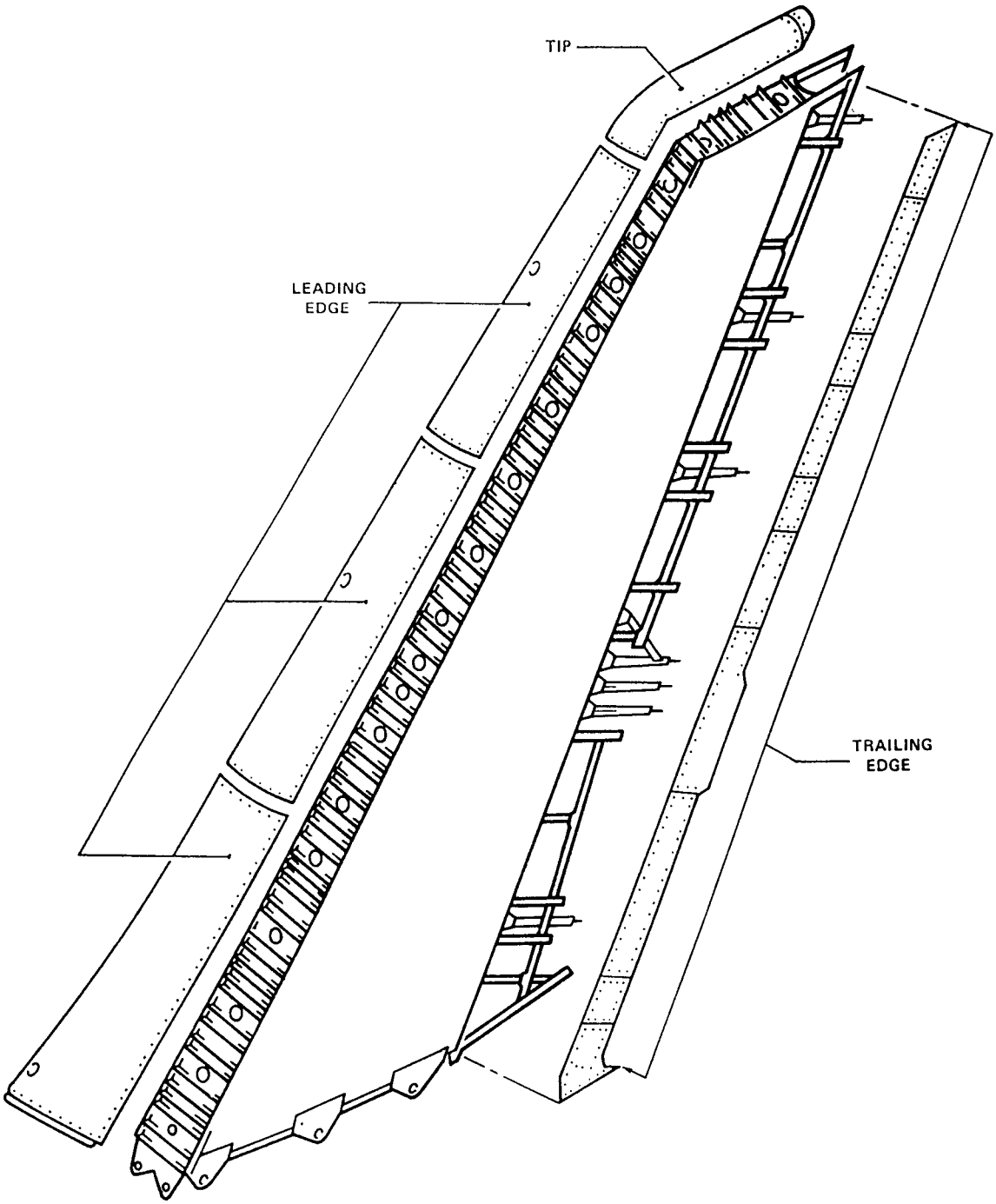
A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platforms, 5.5 to 14.5 m (18 to 48 ft.)
(2)98A55307516000	Ladder - Access, Vertical Stabilizer
(3)	Nondestructive Test Equipment
(4)Material No. 05-027	Special Materials (Ref. 20-31-00)

Referenced Procedures

- 27-21-21, P. Block 401	Rudder
- 27-24-11, P. Block 401	Rudder Servo Control 22CB, 27CB, 32CB
- 51-73-10, P. Block 801	Repair of Minor Damage
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 51-77-10, P. Block 801	Repair of Composite Components
- 53-10-67, P. Block 401	Vertical Stabilizer Dorsal Fin
- 53-10-69, P. Block 401	Vertical Stabilizer Side Fairings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-30-00, P. Block 301	Vertical Stabilizer - Access Precautions
- 55-30-00, P. Block 801	Vertical Stabilizer
- 55-32-11, P. Block 401	Vertical Stabilizer Leading Edge
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-34-11, P. Block 401	Vertical Stabilizer Tip
- 55-36-11, P. Block 801	Vertical Stabilizer Attach Fittings - Approved Repairs
- 55-46-13, P. Block 401	Rudder Hinge Bearing No. 4
	NTM - Nondestructive Testing Manual
	SRM - Structural Repair Manual

B. Procedure
(1)Job Set-Up
(a)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
WARNING: SPECIAL ACCESS PRECAUTIONS MUST BE OBSERVED.
(b)Before entering composite vertical stabilizer observe special access precautions (Ref. 55-30-00, P. Block 301).
(c)Position access platforms.
(d)Open equipment compartment access door 312AR.
(e)Open vertical stabilizer access door 311AZ.
(f)Position access ladder P/N 98A55307516000 and open vertical stabilizer access door 311BZ.
(g)Remove dorsal fin (Ref. 53-10-67, P. Block 401).
(h)Remove side fairings (Ref. 53-10-69, P. Block 401).
(j)Remove vertical stabilizer leading edge (Ref. 55-32-11, P. Block 401).
(k)Remove erosion protection tape from the leading edge panels (Ref. 55-30-00, P. Block 801).
NOTE : This step is only applicable if erosion protection tape is installed.
(l)Remove vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).
(m)Remove vertical stabilizer tip (Ref. 55-34-11, P. Block 401).
(n)Remove rudder (Ref. 27-21-21, P. Block 401).
(2)Inspection/Check
(a)The following areas have specific damage criteria:
1 Spar box skin panels including stringer outer flange.
2 Stringer inner flange
3 Spars and Ribs
4 Leading edge, tip and trailing edge panels (nonmetallic parts) (Ref. Fig. 601).
5 Hinge arms (except lugs) and support strut.
6 Hinge arm lugs.
7 For the damage limitations for step 1 thru to 6 refer to the SRM 55-30-00 P. Block 101.
8 Inspect hinge arms and support strut for scratches, marks, dents, corrosion, loose or missing rivets and condition of sealant and paint coatings.
Pay special attention to:
- Hinge arm lugs, edges and bonding strap attachments.
NOTE : If attach point for bonding angle on H-section hinge arms is corroded, install angle on opposite leg of hinge arm if possible.
(b)For the general damage limitations refer to the SRM 55-30-00, P. Block 101
(c)Inspect support strut for scratches, marks, dents, corrosion, damaged paintwork, security of fasteners and cracks.
If limitations are exceeded a structural repair must be carried out, or component replaced. Pay particular attention to the following areas:
1 Rudder hinge arm No. 1 (10) at vertical stabilizer RIB5.



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Leading Edge, Tip and Trailing Edge Panels
Figure 601

2 Rudder hinge arm No. 2 (12) at vertical stabilizer RIB8.
3 Rudder hinge arm No. 3 (12) at vertical stabilizer RIB9.
4 Rudder hinge arm No. 4 (11) at vertical stabilizer RIB10.
5 Rudder hinge arm No. 5 (10) at vertical stabilizer RIB13.
6 Rudder hinge arm No. 6 (10) at vertical stabilizer RIB15.
7 Rudder hinge arm No. 7 (10) at vertical stabilizer RIB17.

(d)Inspection of bearings in hinge arms:

1 Check bearings at hinge arm No. 1 thru 3 and 5 thru 7 in the vertical direction according to the following procedure (Ref. Fig. 602):
- Apply force (F1) by hand to the head of the bolt (60) in the down direction. Measure and note the dimension "A1".
- Apply force (F2) by hand to the tail of the bolt (60) in the up direction. Measure and note the dimension "A2".
- Calculate the dimension "X" as follows: X = A1 - A2.
- If the dimension "X" is more than the allowable limit of 1 mm (0.0393 in.) replace the defective bearing (Ref. 55-36-11, P. Block 801).

2 Check bearing at hinge arm No. 4, dimension 'y' should not be under 2.5 mm (0.098 in.) (Ref. Fig. 602). If dimension 'y' is under 2.5 mm (0.098 in.) replace bearing (Ref. 55-46-13, P. Block 401).

3 Check servo at hinge arm No. 2 and 3 dimension 'x' should not be under 0.5 mm (0.02 in.) (Ref. Fig. 604):
- If dimension 'x' is under 0.5 mm (0.02 in.) replace defective bearing (Ref. Lucas Aerospace SB 31042-27-06 or Lucas Aerospace SB 27-21-0W). For removal/installation of servo controls refer to 27-24-11, P. Block 401).

4 Check servo at hinge arm No. 4 dimension 'x' should not be under 0.5 mm (0.02 in.) (Ref. Fig. 605):
- If dimension 'x' is under 0.5 mm (0.02 in.) replace defective bearing (Ref. Lucas Aerospace SB 31042-27-06 or Lucas Aerospace SB 27-21-0W). For removal/installation of servo controls refer to 27-24-11, P. Block 401).

(e)Measurement of fits and clearances.

1 Hinge arms No. 1, 5, 6 and 7 (Ref. Fig. 603).

a Inspect all bearings, bushes and bolts for cracks, corrosion and marks.

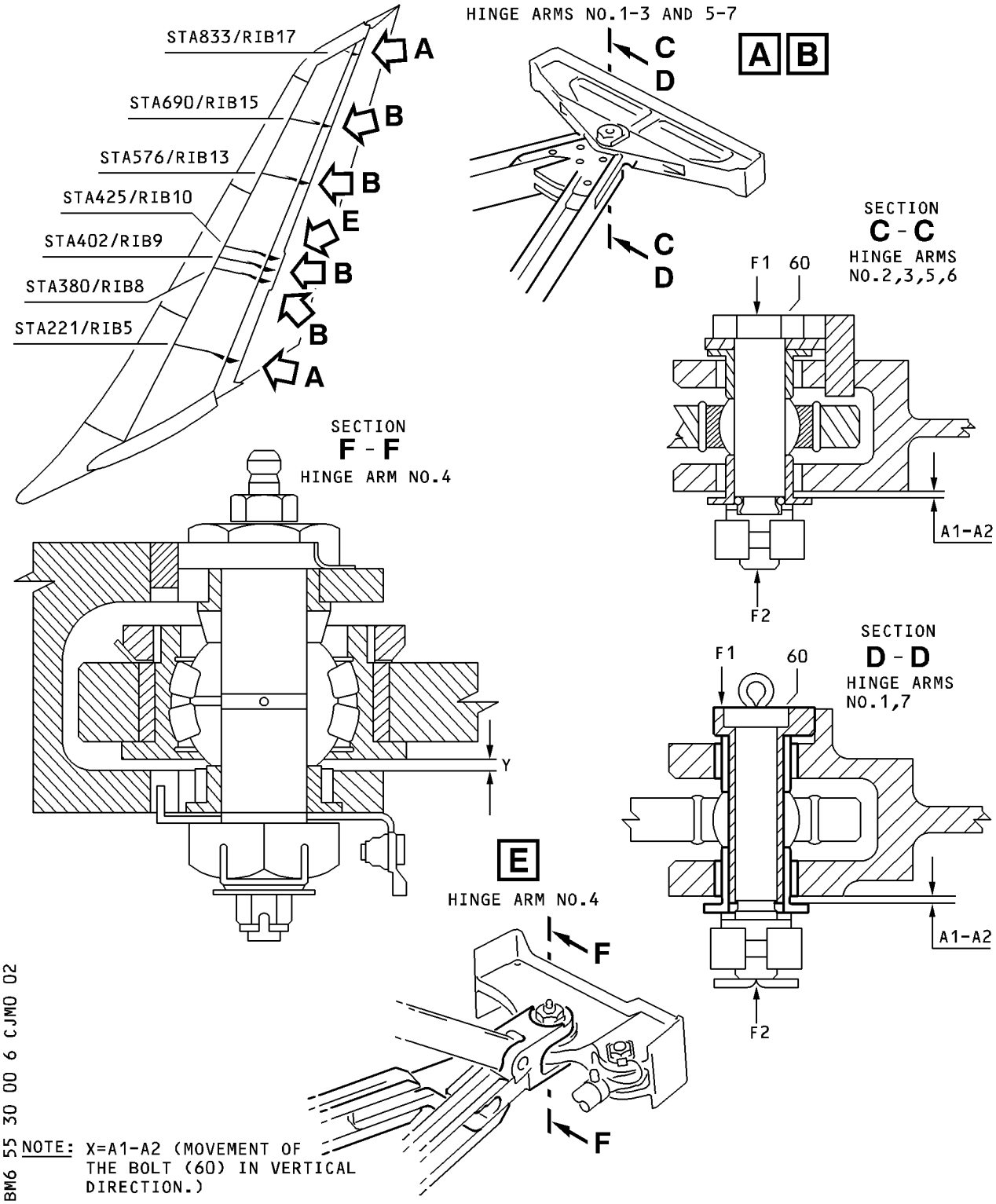
b Measure fits and clearances of components as listed in the following table:

Fits and Clearances, Ruder Hinge Arms No. 1, 5, 6 and 7 (Ref. Fig. 603)

R	Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
		Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm (in.)
		Min.	Max.	Min.	Max.	Min.	Max.	
	C-C ID2	15.865 (0.6246)	15.905 (0.6262)	-0.015	0.036	15.905 (0.6262)	15.925 (0.6270)	0.076

Detail and Item No.	Original Mfg Limits Dimension mm (in.) Min.	Original Mfg Limits Dimension mm (in.) Max.	Original Mfg Limits Assy. Clearance mm (in.) Min.	Original Mfg Limits Assy. Clearance mm (in.) Max.	In-Service Wear Limits Dimension Limits mm (in.) Min.	In-Service Wear Limits Dimension Limits mm (in.) Max.	In-Service Wear Limits Max. Allow. Clear. mm (in.)
			(-0.0006)	(0.0014)			(0.0030)
OD3	15.869 (0.6248)	15.880 (0.6252)			15.849 (0.6240)	15.869 (0.6248)	
ID3	12.700 (0.5000)	12.718 (0.5007)			12.718 (0.5007)	12.738 (0.5015)	
			0.015 (0.0006)	0.044 (0.0017)			0.084 (0.0033)
OD1	12.674 (0.4990)	12.685 (0.4994)			12.654 (0.4982)	12.674 (0.4990)	
D-D							
ID5	15.865 (0.6246)	15.905 (0.6262)			15.905 (0.6262)	15.925 (0.6270)	
			-0.015 (-0.0006)	0.036 (0.0014)			0.076 (0.0030)
OD4	15.869 (0.6248)	15.880 (0.6252)			15.849 (0.6240)	15.869 (0.6248)	
ID4	12.700 (0.5000)	12.718 (0.5007)			12.718 (0.5007)	12.738 (0.5015)	
			0.006 (0.0002)	0.035 (0.0014)			0.075 (0.0030)
OD6	12.683 (0.4993)	12.694 (0.4998)			12.663 (0.4985)	12.683 (0.4993)	

c Should stated limits be exceeded, component must be replaced.



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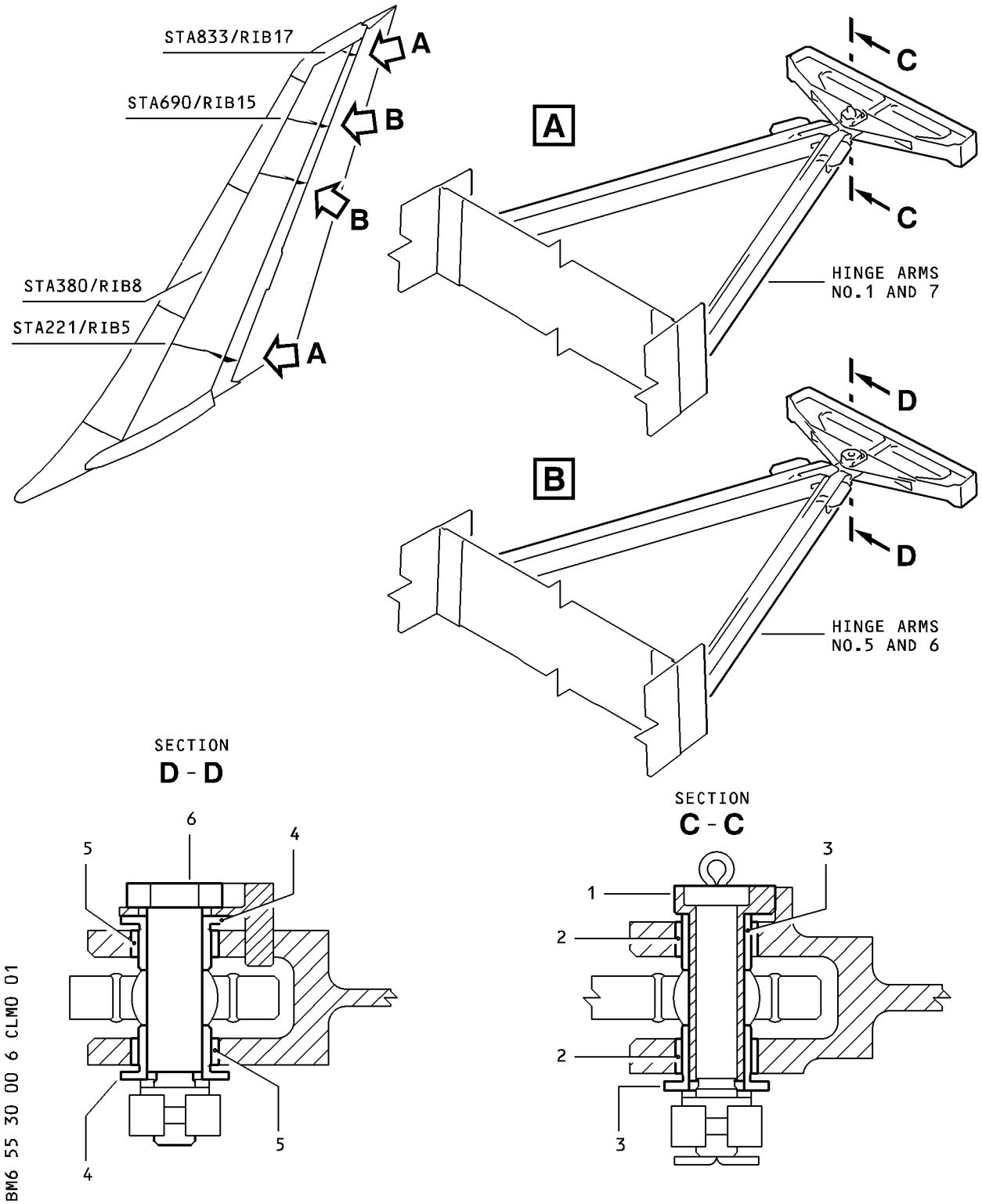
NOTE: X=A1-A2 (MOVEMENT OF THE BOLT (60) IN VERTICAL DIRECTION.)

Hinge Arm Connection - Rudder
Figure 602



Hinge Arms No. 1, 5, 6 and 7
Figure 603

2 Hinge arms No. 2 and 3 (Ref. Fig. 604)

a Inspect all bearings, bushes and bolts for cracks, corrosion and marks.

b Measure fits and clearances of components as listed in the following table:

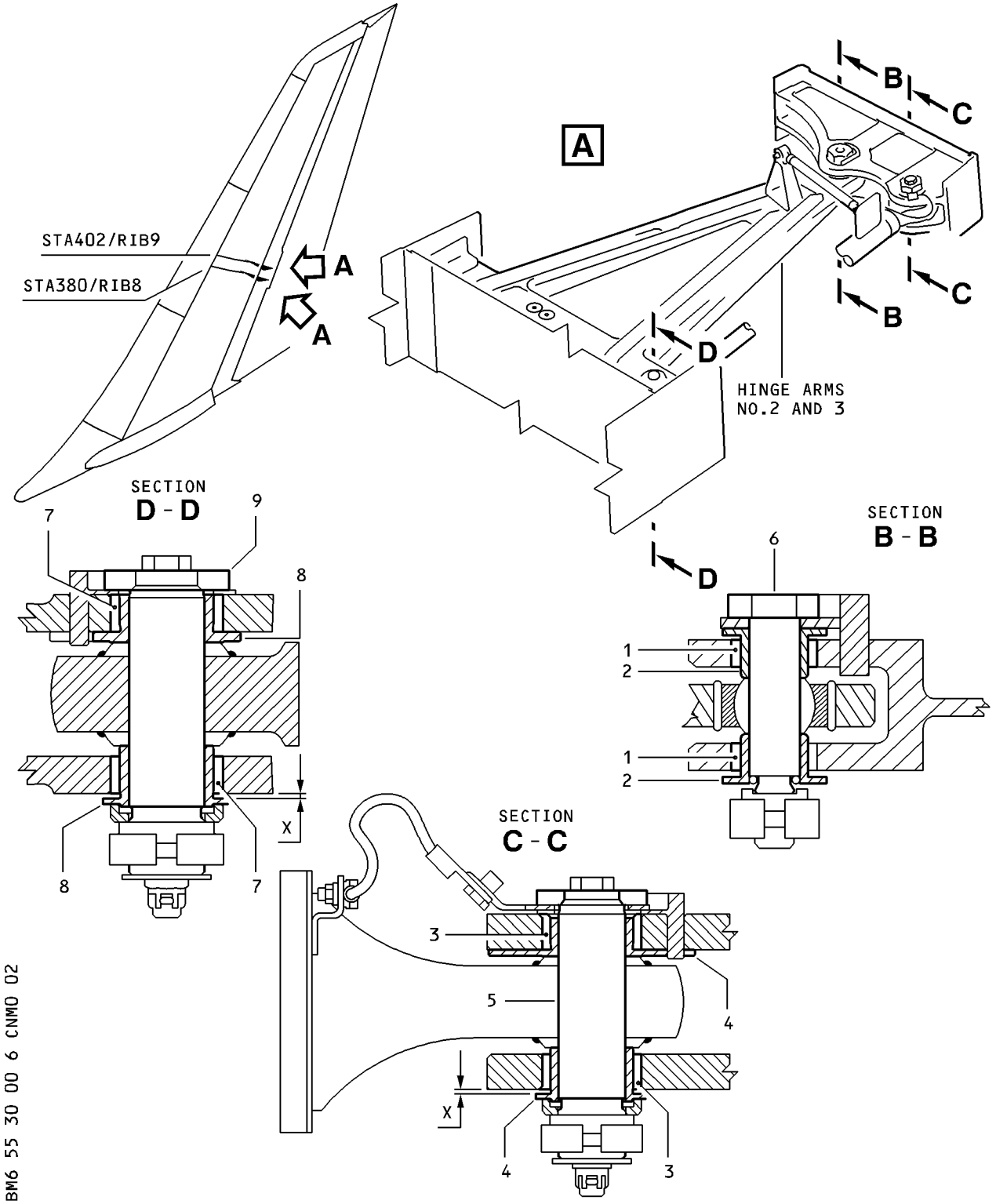
Fits and Clearances, Rudder Hinge Arm No. 2 and 3 (Ref. Fig. 604)

Detail and Item No.	Original Mfg Limits: Dimension mm (in.) Min.	Original Mfg Limits: Dimension mm (in.) Max.	Original Mfg Limits: Assy. Clearance mm (in.) Min.	Original Mfg Limits: Assy. Clearance mm (in.) Max.	In-Service Wear Limits: Dimension Limits mm (in.) Min.	In-Service Wear Limits: Dimension Limits mm (in.) Max.	In-Service Wear Limits: Max. Allow. Clear. mm(in.)
B-B							
C-C							
ID1	31.716 (1.2487)	31.767 (1.2507)					
			-0.020 (-0.0008)	0.047 (0.0019)	no wear permissible		
OD2	31.720 (1.2488)	31.736 (1.2494)					
ID2	25.400 1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD6	25.380 (0.9992)	25.393 (0.9997)					
ID3	31.716 (1.2487)	31.767 (1.2507)					
			-0.020 (-0.0008)	0.047 (0.0019)	no wear permissible		
OD4	31.720 (1.2488)	31.736 (1.2494)					
ID4	25.400 (1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD5	25.380 (0.9992)	25.393 (0.9997)					
D-D							
ID7	31.716 (1.2487)	31.767 (1.2507)					
			-0.020 (-0.0008)	0.047 (0.0019)	no wear permissible		
OD8	31.720 (1.2488)	31.736 (1.2494)					

Detail and Item No.	Original Mfg Limits: Dimension mm Min.	Original Mfg Limits: Dimension mm Max.	Original Mfg Limits: Assy. Clearance mm Min.	Original Mfg Limits: Assy. Clearance mm Max.	In-Service Wear Limits: Dimension Limits mm Min.	In-Service Wear Limits: Dimension Limits mm Max.	In-Service Wear Limits: Max. Allow. Clear. mm(in.)
ID8	25.400 (1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD9	25.380 (0.9992)	25.393 (0.9997)					

Table 608

c Should stated limits be exceeded, component must be replaced.



Hinge Arms No. 2 and 3
Figure 604

3 Hinge arm No. 4 (Ref. Fig. 605)

a Inspect all bearings, bushes and bolts for cracks, corrosion and marks.

b Measure fits and clearances of components as listed in the following table:

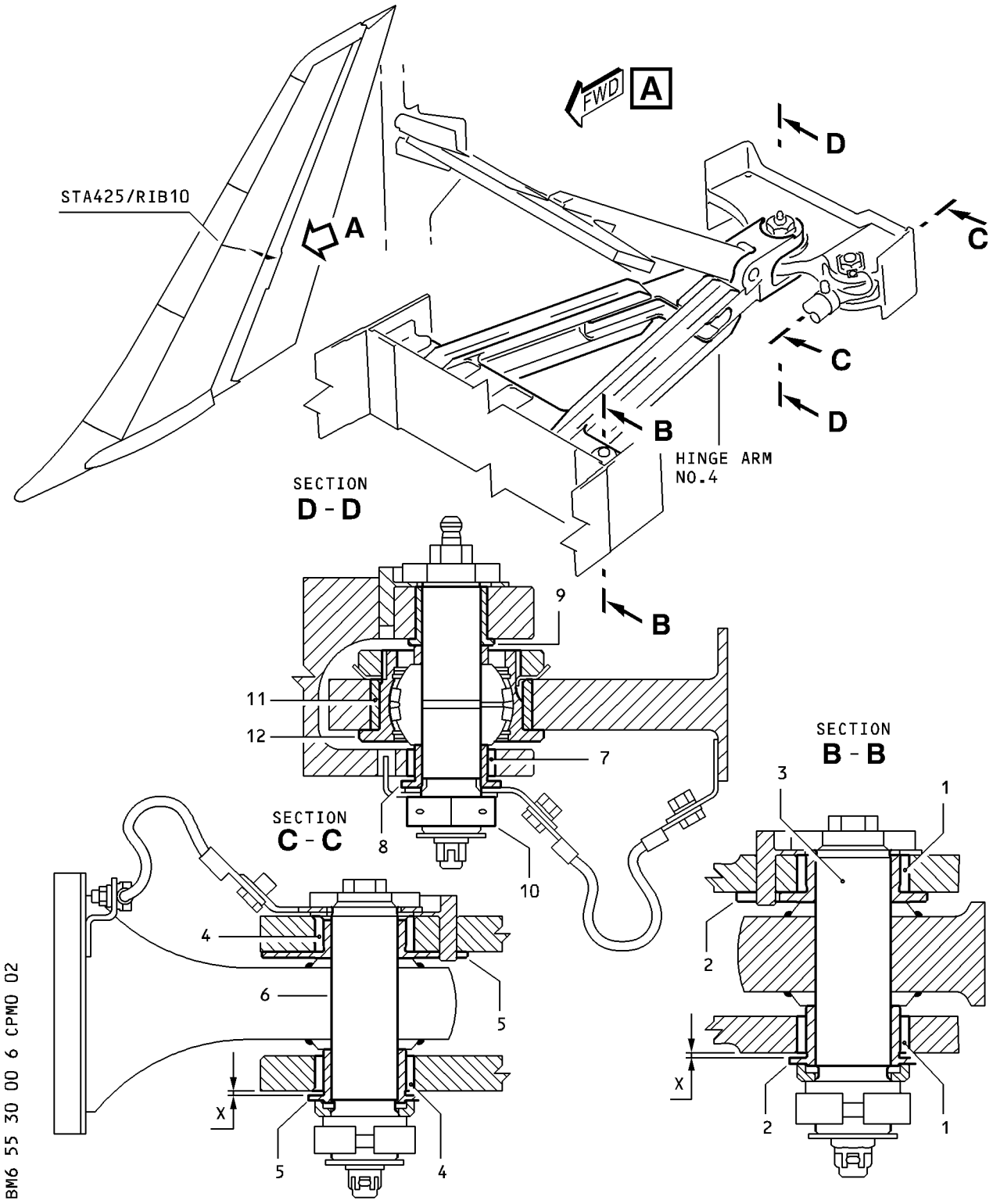
Fits and Clearances, Ruder Hinge Arms No. 4 (Ref. Fig. 605)

R	Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
		Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm(in.)
		Min.	Max.	Min.	Max.	Min.	Max.	
	B-B							
	ID1	31.716 (1.2487)	31.767 (1.2507)					
				-0.020 (-0.0008)	0.047 (0.0019)	no wear permissible		
	OD2	31.714 (1.2486)	31.736 (1.2494)					
	ID2	25.400 (1.0000)	25.421 (1.0008)					
				0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
	OD3	25.380 (0.9992)	25.393 (0.9997)					
	C-C							
	ID4	31.716 (1.2487)	31.767 (1.2507)					
				-0.020 (-0.0008)	0.047 (0.0019)	no wear permissible		
	OD5	31.720 (1.2488)	31.736 (1.2494)					
	ID5	25.400 (1.0000)	25.421 (1.0008)					
				0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
	OD6	25.380 (0.9992)	25.393 (0.9997)					

Detail and Item No.	Original Mfg Limits: Dimension mm (in.) Min.	Original Mfg Limits: Dimension mm (in.) Max.	Original Mfg Limits: Assy. Clearance mm (in.) Min.	Original Mfg Limits: Assy. Clearance mm (in.) Max.	In-Service Wear Limits: Dimension Limits mm (in.) Min.	In-Service Wear Limits: Dimension Limits mm (in.) Max.	In-Service Wear Limits: Max. Allow. Clear. mm (in.)
D-D							
ID7	32.000 (1.2598)	32.025 (1.2608)					
			0.000 (0.0000)	0.041 (0.0016)	no wear permissible		
OD8	31.984 (1.2592)	32.000 (1.2598)					
ID8	25.400 (1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD10	25.380 (0.9992)	25.393 (0.9997)					
ID9	25.400 (1.0000)	25.421 (1.0008)					
			0.020 (0.0008)	0.041 (0.0016)	no wear permissible		
OD10	25.380 (0.9992)	25.393 (0.9997)					
ID11	62.000 (2.4409)	62.019 (2.4417)					
			0.000 (0.0000)	0.032 (0.0013)			
OD12	61.987 (2.4404)	62.000 (2.4409)					

Table 607

c Should stated limits be exceeded, component must be replaced.



Hinge Arm No. 4
Figure 605

4 Support strut (Ref. Fig. 606)

a Inspect all bearings, bushes and bolts for cracks, corrosion and marks.

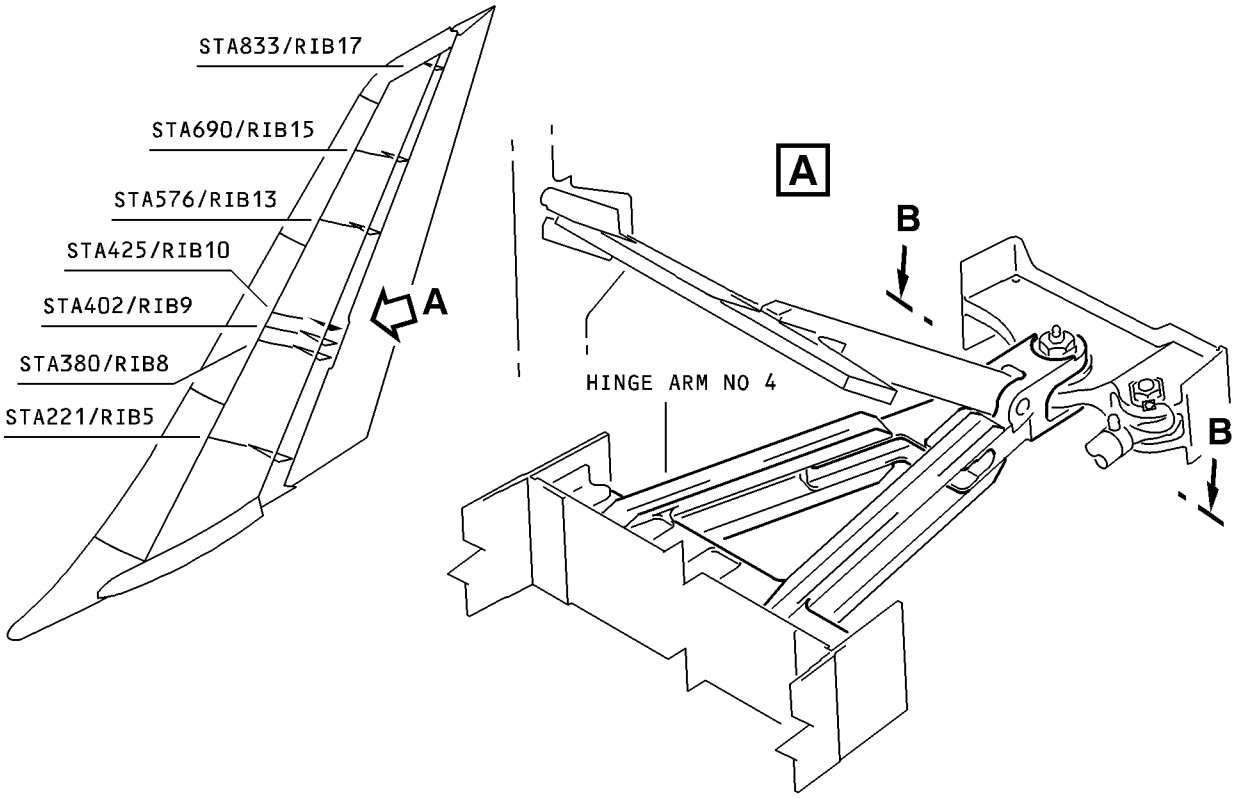
b Measure fits and clearances of components as listed in the following table:

R

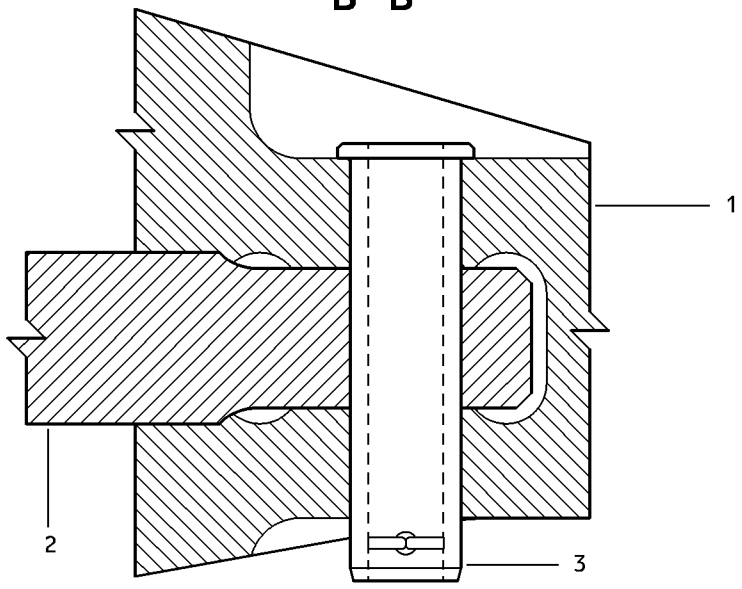
Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
B-B							
ID1	22.000 (0.8661)	22.021 (0.8670)			22.021 (0.8670)	22.041 (0.8678)	
			0.000 (0.0000)	0.042 (0.0017)			0.082 (0.0032)
OD3	21.979 (0.8653)	22.000 (0.8661)			21.959 (0.8645)	21.979 (0.8653)	
ID2	22.000 (0.8661)	22.021 (0.8670)	0.000 (0.0000)	0.042 (0.0017)	22.021 (0.8670)	22.041 (0.8678)	8.082 (0.0032)

Table 606

c Should stated limits be exceeded, component must be replaced.



SECTION
B- B



BM6 55 30 00 6 CRM0 00

Support Strut
Figure 606

R EFFECTIVITY: 006-101,

PIA

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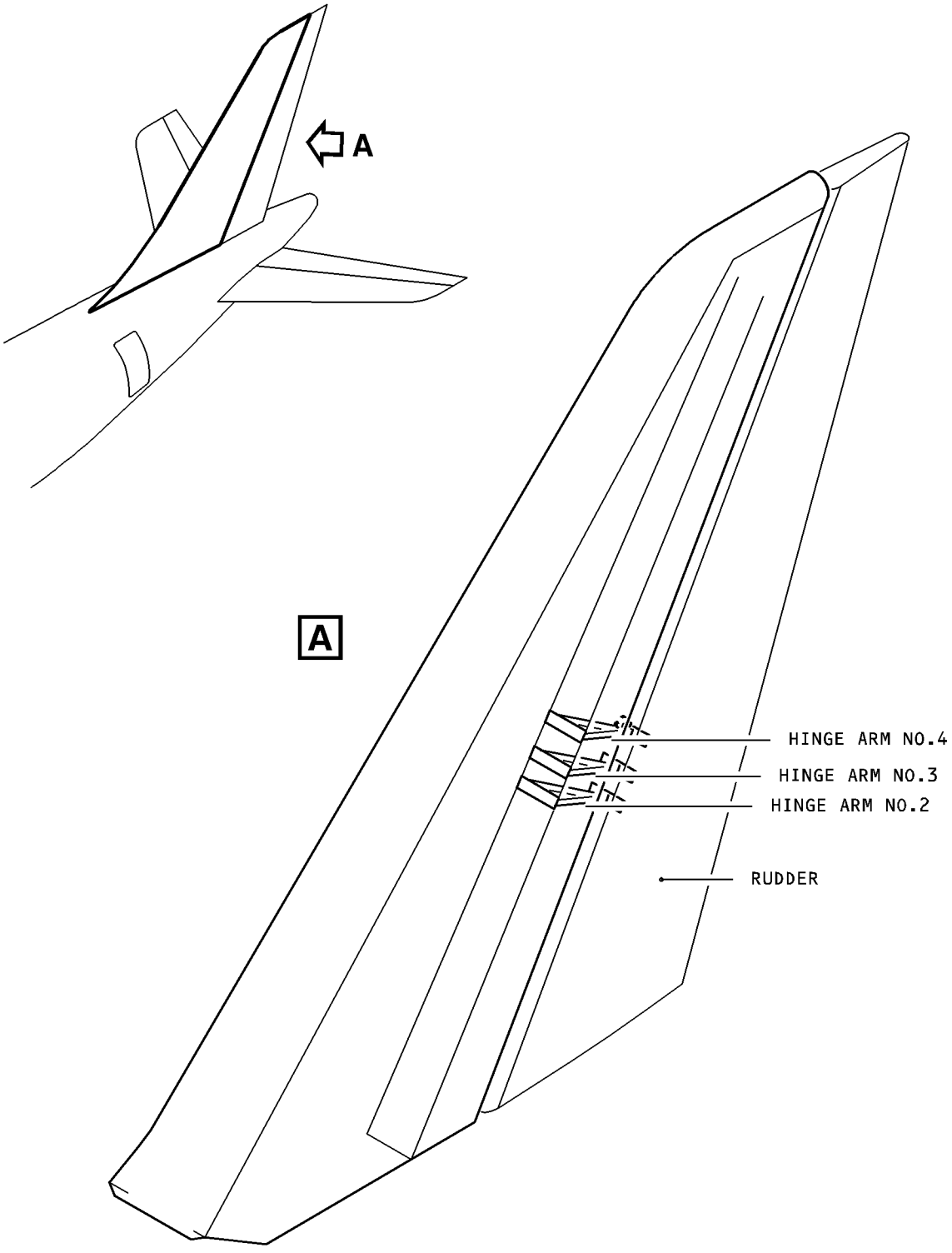
(f)For the repair of paint coatings, refer to 51-75-10, P. Block 801.
(g)For the removal of scratches, marks and dents, refer to 51-77-10, P. Block 801.
(h)Inspect all structural components and areas for damage, abrasions, scratches and delaminations.
1 Pay special attention to the following:
- Vertical stabilizer skin panels LH and RH from front to rear spar and from fin/fuselage fairing to top, external surface.
- Vertical stabilizer rear spar aft face
- Vertical stabilizer front spar forward face including tip.
- Vertical stabilizer center box internal structure.
- Forward, center and aft vertical stabilizer to fuselage attach, hinge arms, support strut and transverse load fittings.

(j)Visually inspect the rudder servo actuator attachment fittings and structure for distortion and cracks due to de-synchronization. (Ref. Fig. 607)

(3)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Check coating of moisture-removing oil (Mat. No. 05-027) for good condition on all surfaces of metal items and renew as necessary (Ref. 51-75-10, P. Block 801).
(c)Install rudder (Ref. 27-21-21, P. Block 401).
(d)Install vertical stabilizer tip (Ref. 55-34-11, P. Block 401).
(e)Install vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).
(f)Install vertical stabilizer leading edge (Ref. 55-32-11, P. Block 401).
(g)Install erosion protection tape on the leading edge panels (Ref. 55-30-00, P. Block 801).
NOTE : This step is only applicable where erosion protection tape is specified.
(h)Install side fairings (Ref. 53-10-69, P. Block 401).
(j)Install dorsal fin (Ref. 53-10-67, P. Block 401).
(k)Close vertical stabilizer access doors 311AZ and 311BZ.
(l)Remove access ladder.
(m)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(n)Close equipment compartment access door 312AR.
(p)Remove access platforms.



BM6 55 30 00 6 CTMD 00

Inspection of the attachment fittings
of the vertical stabilizer
Figure 607

VERTICAL STABILIZER - APPROVED REPAIRS

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reason for the Job

A. Replacement of Erosion Protection Tape on Vertical Stabilizer Leading Edge

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 8.5 to 13.5 m (28 to 44 ft.)
B.	Nonmetallic Scraper
C.	Protective Gloves
D. Material No. 05-065	Special Materials (Ref. 20-31-00)
E. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

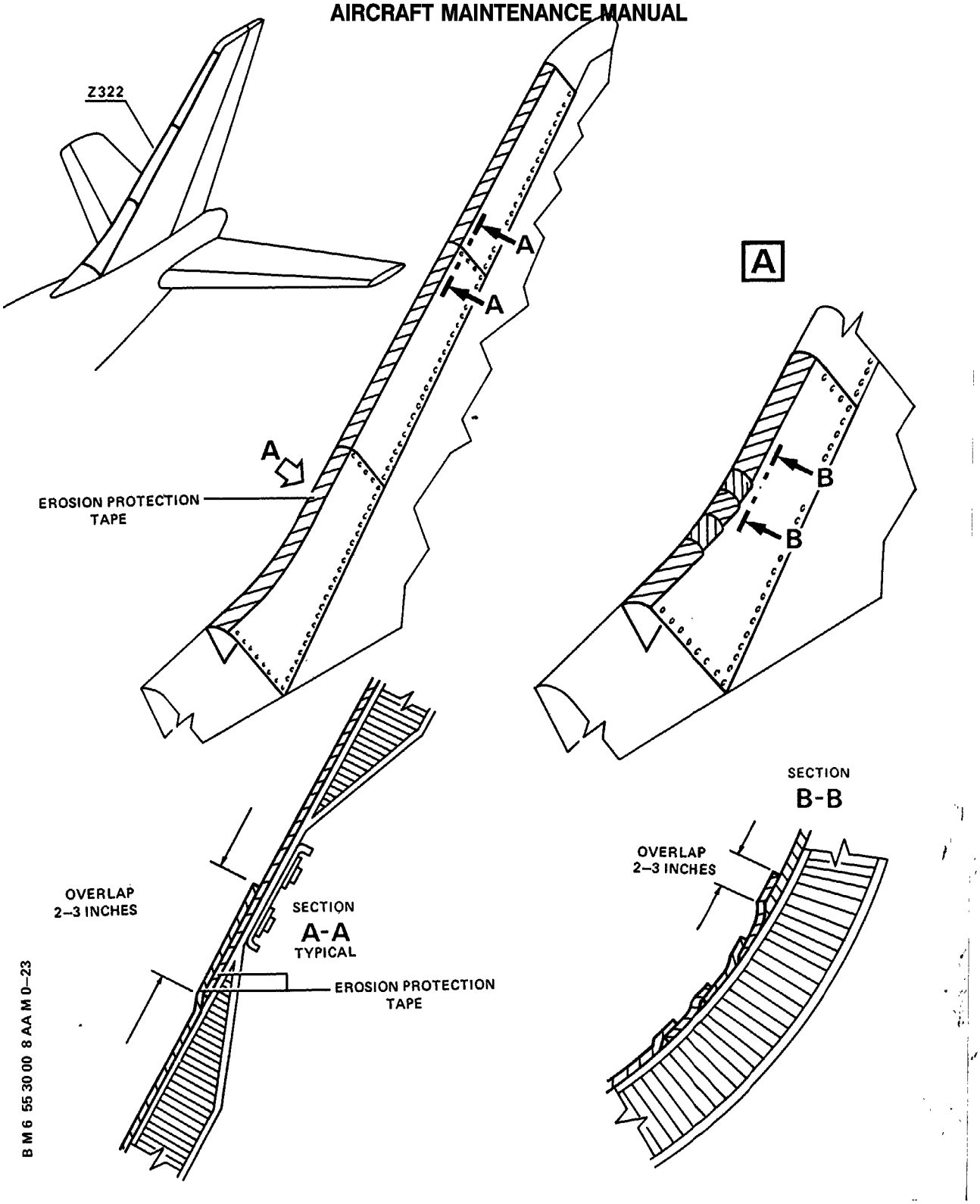
Referenced Procedures

- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures

3. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.

B. Approved Repairs
(1)Removal of erosion protection tape.
(a)Remove erosion protection tape using a nonmetallic scraper.
(2)Preparation for Installation
(a)Clean the surface with cleaning agent (Mat. No. 11-004) and allow to dry.
NOTE : The area to be taped should not be touched again by hand or any other item that may leave an oily film.
(b)Visually inspect the area to be taped, it must be smooth and undamaged prior to the application of the tape.
NOTE : Should a defect be suspected, a structural repair must be carried out.
(3)Installation of Erosion Protection Tape (Ref. Fig. 801)
CAUTION : START INSTALLATION AT THE UPPER LEADING EDGE AND WORK DOWNWARDS. OVERLAP ANY LOWER SECTION ON TO THE ONE ABOVE IT BY 5 - 7.5 cm (2 - 3 in.).
(a)Cut the required length of tape.
(b)Install tape as follows:
NOTE : When applying tape wear protective gloves.
1 Remove backing from the tape as required, placing tape against nose of the leading edge. Overlap the previously fitted section by 5 - 7.5 cm (2 - 3 in.) (Ref. Fig. 801).
NOTE : On the curvature of the lower leading edge section several separate overlapping pieces of tape must be applied. This ensures good surface contact.
2 Trim the excess tape.
CAUTION : TAKE CARE NOT TO MARK THE LEADING EDGE SURFACE.
3 Smooth down the tape using fingers or soft plastic.
NOTE : Make certain that no pockets of air are entrapped.
4 Apply a plexiglass or similar plastic with a rounded edge and press firmly over the whole surface.
(c)Check contact of the tape by means of visual examination.
NOTE : 100 % contact is essential for maximum performance.
(d)Repeat steps (a), (b), and (c), until leading edge is covered. Ensure that each section overlaps the previous one by 5 - 7.5 cm (2 - 3 in.).



Erosion Protection Tape
Figure 801

C. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301). HYDRAULIC FLUID IS DANGEROUS. OBSERVE ALL WARNINGS AND PRECAUTIONS DESCRIBED IN 29-00-00, P. BLOCK 301.

1. Equipment and Materials

	ITEM	DESIGNATION
	A.	Access Platform, 8 m (26 ft.)
	B. 98A53407564001	Tool Set - Removal Attach Bolts, Vertical Stabilizer
R	C. 98A55308440000	Sling - Vertical Stabilizer
	D. 98A55307516000	Ladder - Access, Vertical Stabilizer
	E. 98A55507589000	Bolts - Centering, Vertical Stabilizer
	F.	Circuit Breaker Safety Clips
	G.	Crane, 19 m (62 ft.) (to lift 1600 kg (3527 lb.))
	H.	Container for Hydraulic Fluid Spillage
	J.	Cotter Pins
	K.	Electrical Blanking Caps
	L.	Fiberglass Cord, 2 mm (0.08 in.) dia.
	M.	Torque Wrench, up to 50 m.daN (369 lbf.ft.)
	N. Material No. 04-018	Common Greases (Ref. 20-31-00)
	P. Material No. 05-002	Special Materials (Ref. 20-31-00)
	Q. Material No. 05-005	Special Materials (Ref. 20-31-00)
	R. Material No. 05-027	Special Materials (Ref. 20-31-00)
	S. Material No. 05-052	Special Materials (Ref. 20-31-00)
	T. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
	U. Material No. 16-002	Structure Paints (Ref. 20-31-00)

Referenced Procedures

- 11-20-00, P. Block 1	Exterior Placards and Markings
- 20-23-11, P. Block 1	Installation and Repair of Tubing
- 20-23-12, P. Block 1	Specified Torque Values for Unions
- 20-28-11, P. Block 1	Electrical Bonding
- 23-11-00, P. Block 501	HF System
- 27-21-17, P. Block 401	Bellcranks
- 27-21-21, P. Block 401	Rudder
- 27-24-11, P. Block 401	Rudder Servo Control 22CB, 27CB, 32CB
- 29-00-00, P. Block 301	Hydraulic Fluid - Safety Precautions
- 29-00-00, P. Block 601	Check for External Leakage
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 34-55-00, P. Block 501	VOR
- 51-00-00, P. Block 701	Structures
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 53-10-67, P. Block 401	Vertical Stabilizer Dorsal Fin
- 53-10-69, P. Block 401	Vertical Stabilizer Side Fairings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-36-11, P. Block 601	Vertical Stabilizer Attach Fittings
- 55-36-39, P. Block 601	Vertical Stabilizer Split Sleeves and Tapered Attach Bolts

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Open, safety and tag the following circuit breakers:

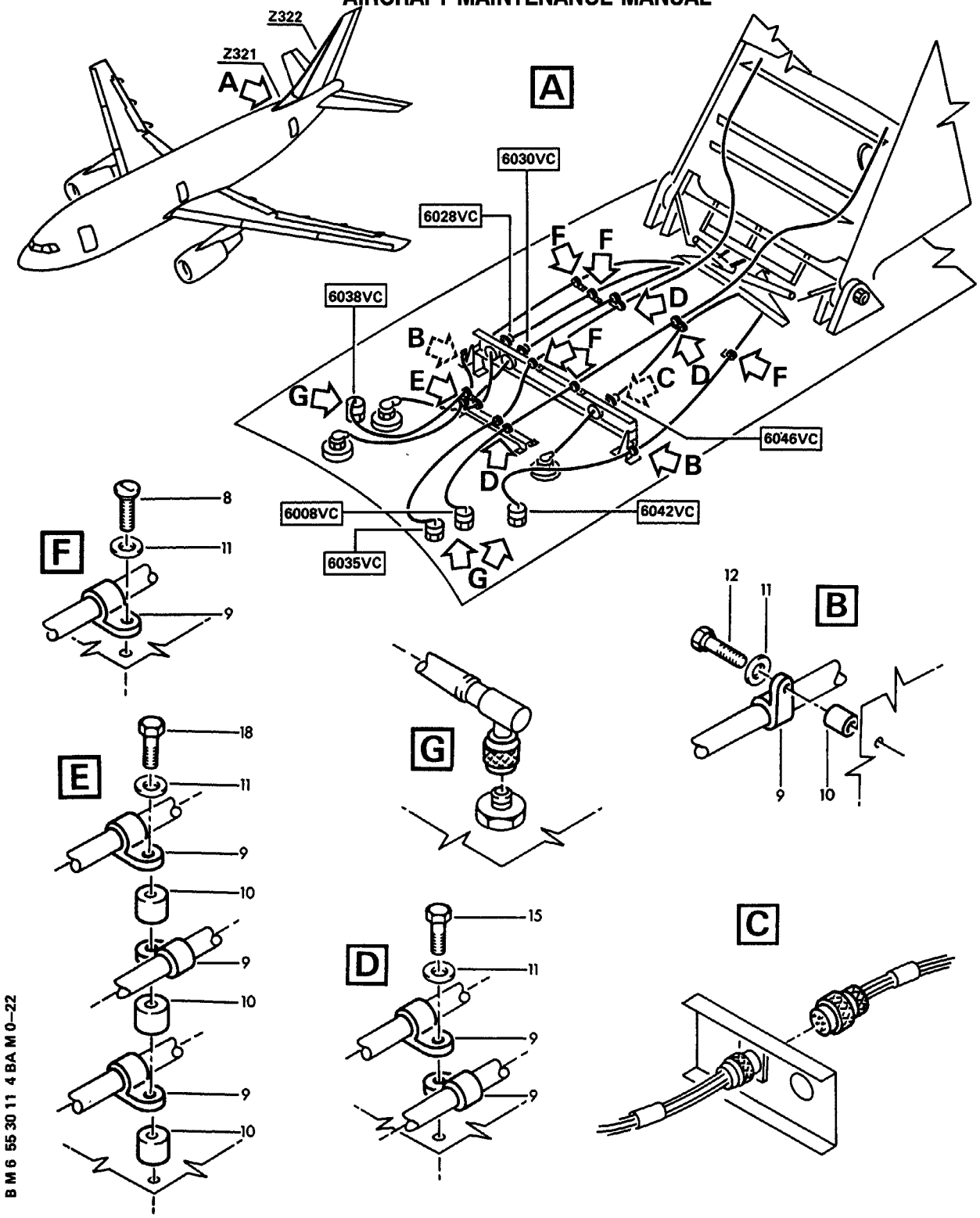
PANEL	SERVICE	IDENT.	LOCATION
21VU	RADIO NAV & COM/VOR	6RS1	107/C02
21VU	RADIO NAV & COM/VOR	6RS2	107/C13
21VU	RADIO NAV & COM/HF1	4RE1	106/D03
21VU	RADIO NAV & COM/HF2	4RE2	106/D12
21VU	AFS-MTP	301CU	102/H01
21VU	AFS-AP1 FD1 FCC 1 26 VAC	305CA1	102/H02
21VU	AFS-AP1 FD1 FCC 1 28 VDC	306CA1	102/H03
21VU	AFS-AP1 FD1 FCU	312CA1	102/H04
21VU	AFS-AP2 FD2 FCU	312CA2	102/H05
21VU	AFS-AP2 FD2 FCC 2 28 VDC	306CA2	102/H06
21VU	AFS-AP2 FD2 FCC 2 26 VAC	305CA2	102/H07
133VU	FLT CTL/CTL SURF POS	1CT	334/S61
133VU	FLT CTL/SERVO CTL & THS HYD SEL	1CB	332/U63
133VU	FLT CTL/SERVO CTL & THS JAM DET	2CB	332/U64

(3)Position access platform.
R (4)Prepare crane and sling P/N 98A55308440000.
(5)Open equipment compartment access door 312AR.
(6)Position access ladder P/N 98A55307516000 and open vertical stabilizer access door 311BZ.
(7)Open vertical stabilizer access door 311AZ.
(8)Remove LH and RH side fairings (Ref. 53-10-69, P. Block 401).
(9)Remove trailing edge access panels (Ref. 55-33-13, P. Block 401).
(10)Remove rudder (Ref. 27-21-21, P. Block 401).
(11)Remove rudder servo controls (Ref. 27-24-11, P. Block 401).
(12)Remove dorsal fin (Ref. 53-10-67, P. Block 401).

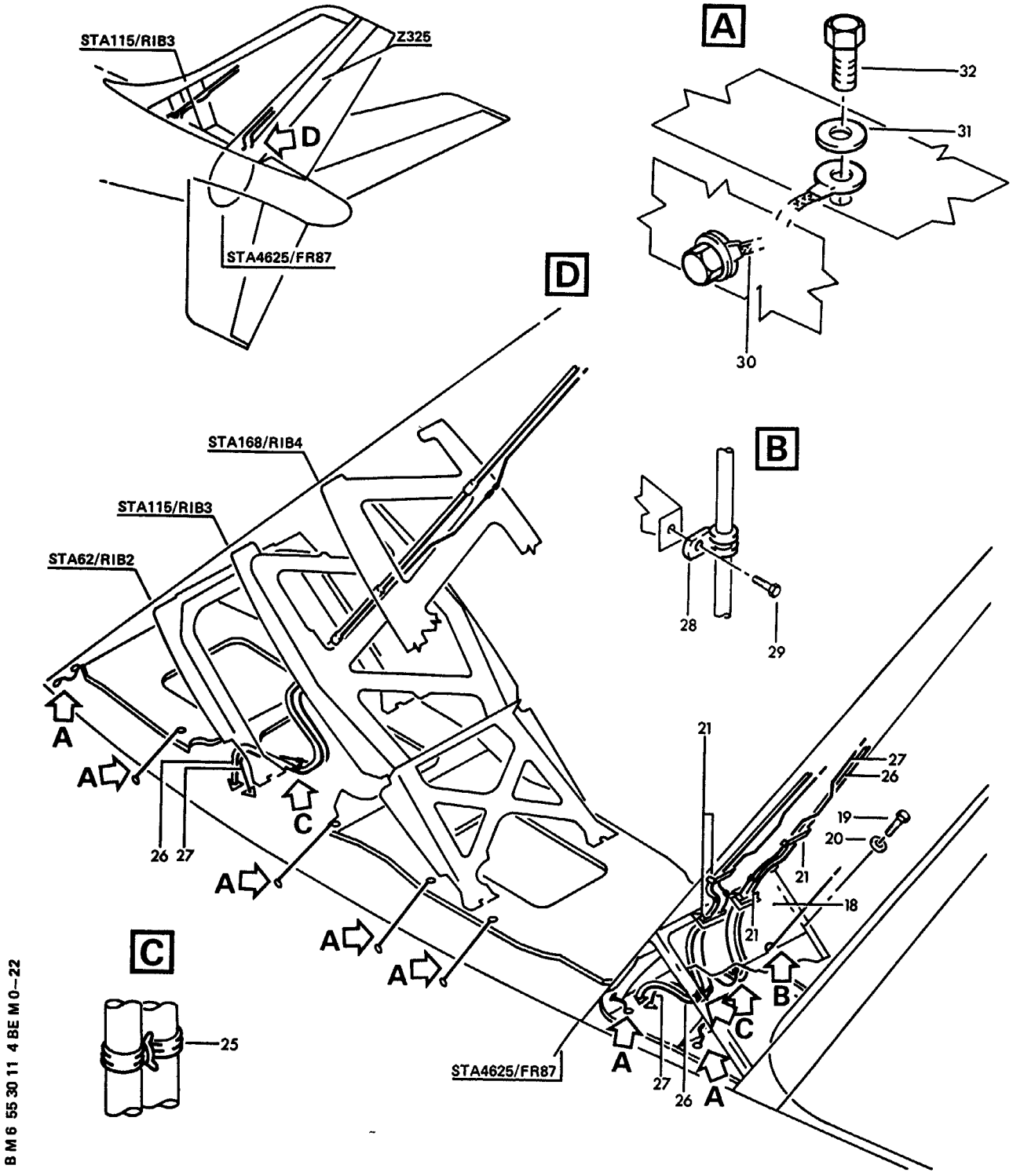
B. Removal
(1)Electrical Disconnection (Ref. Fig. 401, 402)
(a)Disconnect connector 6028 VC-A, electrical harness 1761 VB/2M from receptacle 6028 VC.
(b)Disconnect connector 6030 VC-A, electrical harness 1734 VB/1C from receptacle 6030 VC.
(c)Disconnect connector 6038 VC-A, electrical harness 1741 VB/7T from receptacle 6038 VC.
(d)Disconnect connector 6035 VC-A, electrical harness 1745 VB/2U from receptacle 6035 VC.
(e)Disconnect connector 6008 VC-A, electrical harness 1718 VB/1U from receptacle 6008 VC.
(f)Disconnect connector 6046 VC-A, electrical harness 1742 VB/2C from receptacle 6046 VC.
(g)Disconnect connector 6042 VC-A, electrical harness 1743 VB/8T from receptacle 6042 VC.
(h)Fit blanking caps to all disconnected connectors and receptacles.
(j)Remove screws (8, 12, 15, 18), washers (11), cable clamps (9) and spacers (10).
(k)Coil up cable harness and temporarily secure onto front spar.
(l)Remove screw (29) from cable clamp (28) (Ref. Fig. 402).
(2)Hydraulic Pipeline Removal (Ref. Fig. 402)
(a)Remove bolt (32), washer (31) and bonding strap (30).
(b)Remove screws (19), washers (20) and panel (18).
(c)Remove fiberglass cord (25) and clamps (21) from lower hydraulic pipelines (26, 27).
(d)Position container for hydraulic fluid spillage.
(e)Disconnect and remove lower hydraulic pipelines (26, 27).
(f)Install blanking plugs on hydraulic pipelines and unions.
(g)Clean up any spilled hydraulic fluid (Ref. 51-00-00, P. Block 701).
(3)Remove pushrods from between bellcrank at RIB1 and variable stop unit (Ref. 27-21-17, P. Block 401).
(4)Removal of Attachment Bolts(Ref. Fig. 403, 404, 405)

**ON A/C 001-005, 102-200,

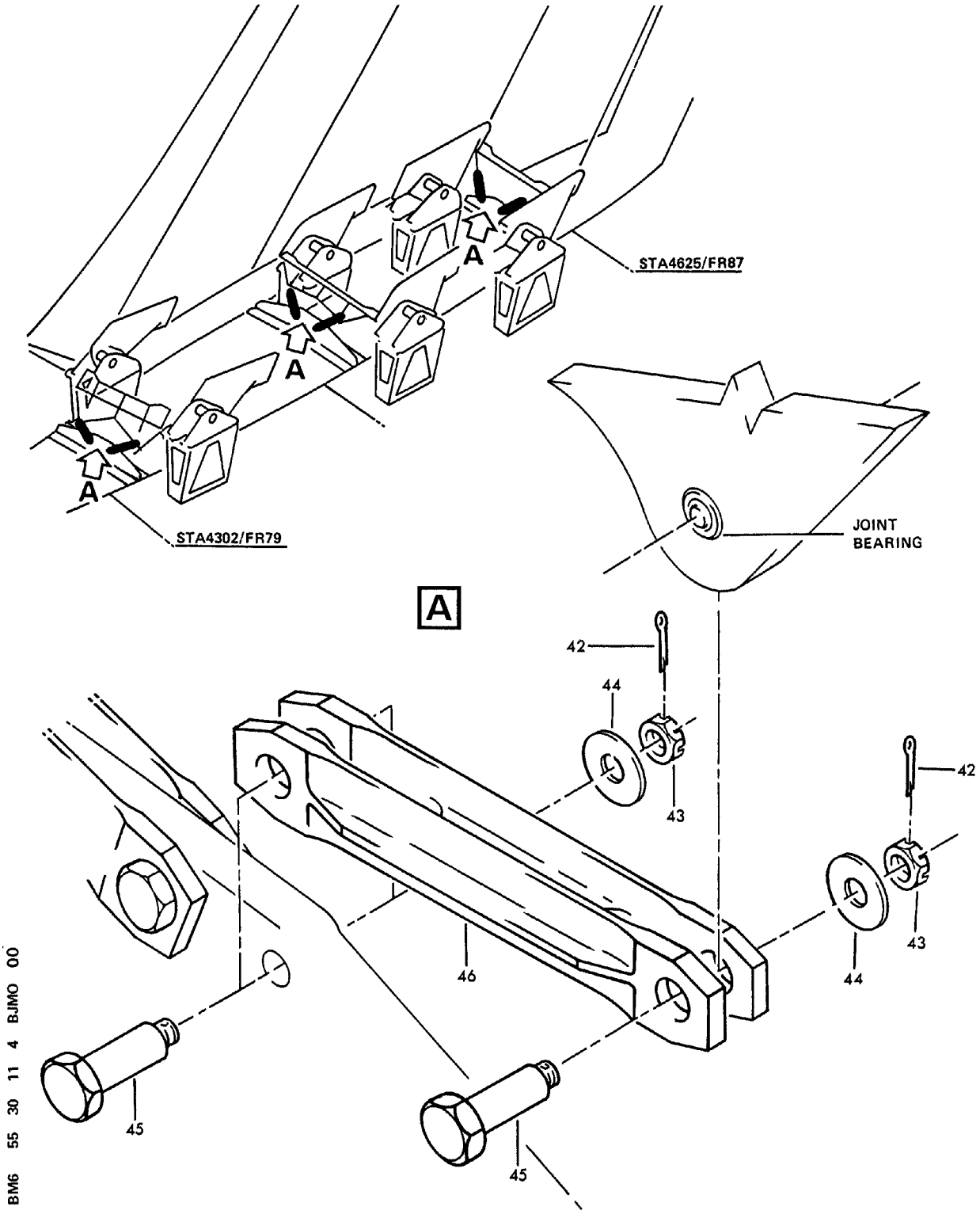
NOTE : Identify all items to facilitate relocation during installation.
(a)Remove cotter pins (42), castellated nuts (43), washers (44), bolts (45) and forked links (46).
(b)Remove and discard self-adhesive discs covering hoisting points.
(c)Remove hoisting lugs, reverse and install in vertical stabilizer at STA327(RIB7) and STA690(RIB15) LH and RH sides (Ref. Fig. 406).
R (d)Position crane and attach sling P/N 98A55308440000 to hoisting lugs.
(e)Lightly tension sling cables. Adjust turnbuckles as required to obtain even tension. Increase cable tension to relieve load on attach fittings.



Cable Harnesses
Figure 401



Hydraulic Pipelines
Figure 402



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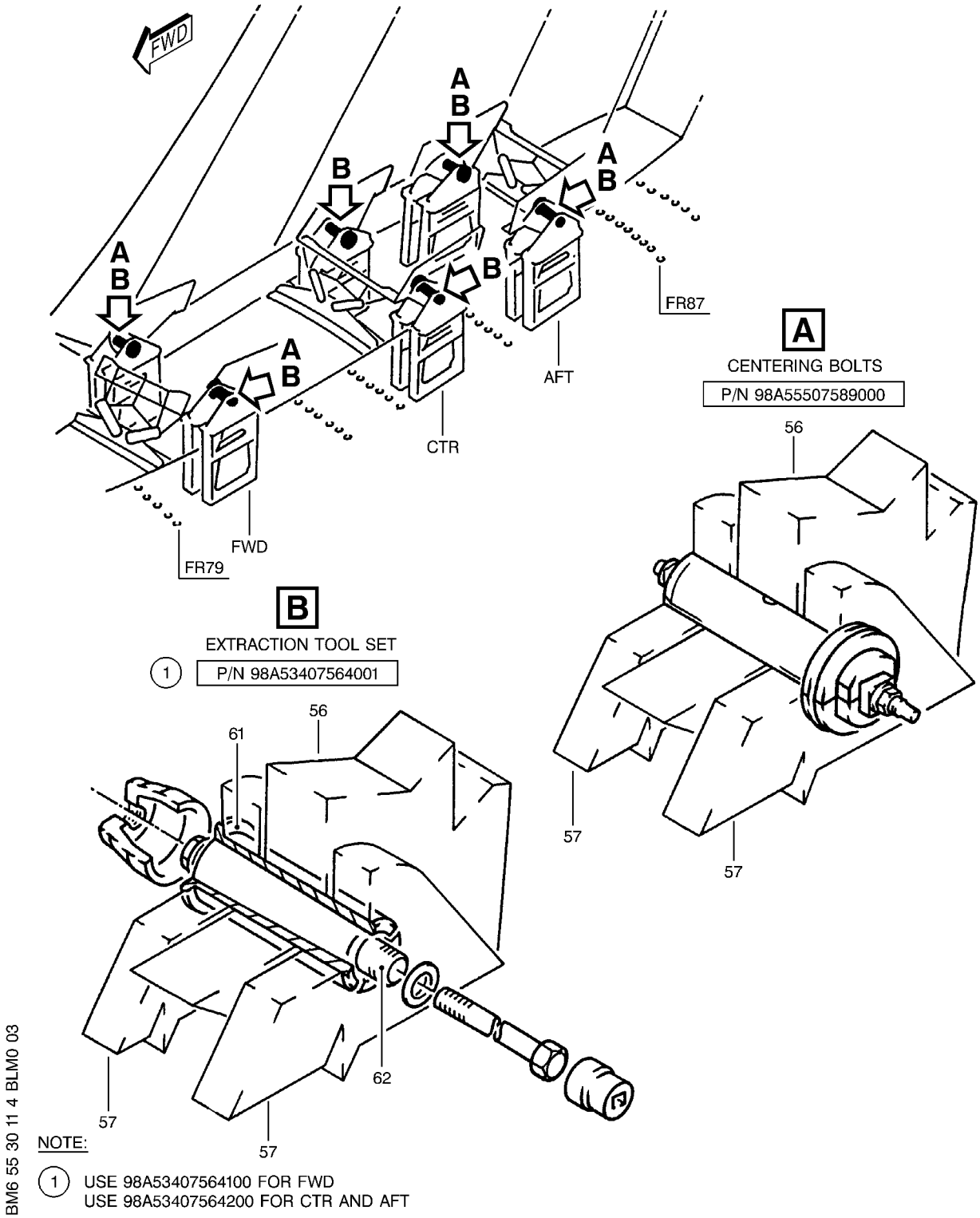
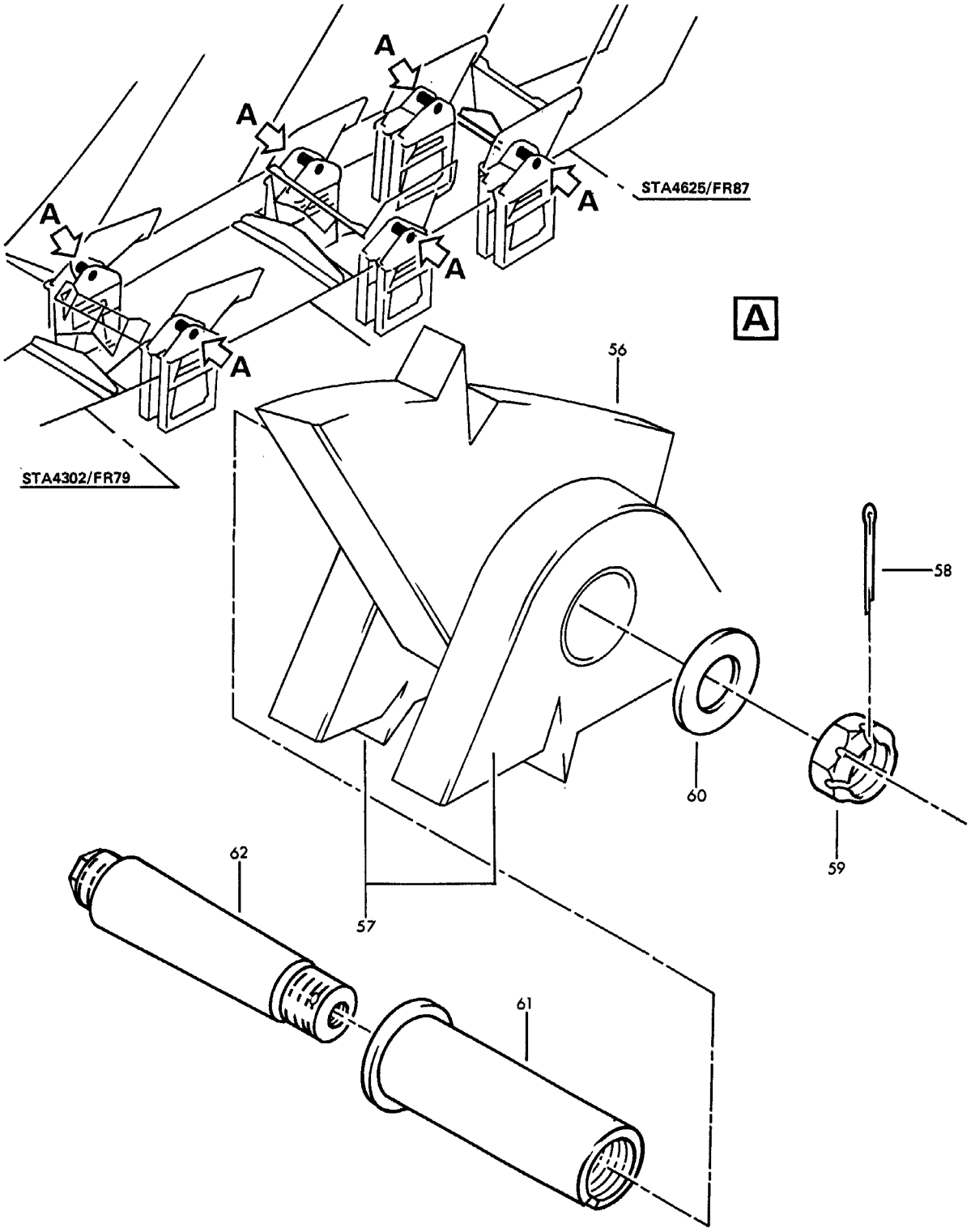
Transverse Load Fittings
Figure 403



Centering Bolts and Extraction Tool
Figure 404

R



B M 6 55 30 11 4 BN M 0–15

Main Attach Fittings
Figure 405

(f)Remove front and rear tapered attach bolts and split sleeves as follows:

NOTE : Remove tapered connections from front and rear fittings singly. A centering bolt is to be inserted in the place of each removed connection before a further connection is removed. The steps described apply to the removal of one tapered connection only.

1 Remove cotter pin (58), castellated nut (59) and washer (60).

2 Remove tapered attach bolt (62) from split sleeve (61) using extraction tool.

NOTE : Use extraction tool P/N 98A53407564100 (Part of P/N 98A53407564001) for front tapered attach bolt and extraction tool P/N 98A53407564200 (Part of P/N 98A53407564001) for rear tapered attach bolt.

3 Carefully press out split sleeve (61) from fitting.

4 Insert stabilizer centering bolt in place of split sleeve and tighten.

NOTE : Use centering bolt P/N 98A55507589100 (Part of P/N 98A55507589000) for front fitting and centering bolt P/N 98A55507589200 (Part of P/N 98A55507589000) for rear fitting.

(g)Remove center tapered attach bolts and split sleeves.

NOTE : The steps described apply to the removal of one tapered connection only.

1 Remove cotter pin (58), castellated nut (59) and washer (60).

2 Remove tapered attach bolt (62) from split sleeve (61) using extraction tool P/N 98A53407564200 (Part of P/N 98A53407564001).

3 Carefully press out split sleeve (61) from fitting.

(h)Remove centering bolts from front and rear fittings.

**ON A/C 006-101,

NOTE : Identify all items to facilitate relocation during installation.

(a)Remove cotter pins (42), castellated nuts (43), washers (44), bolts (45) and forked links (46).

(b)Remove and discard self-adhesive discs covering hoisting points.

(c)Remove screwed plastic plugs from vertical stabilizer at STA327(RIB7) and STA690(RIB15) LH and RH sides (Ref. Fig. 406).

R (d)Position crane and attach sling P/N 98A55308440000 to hoisting points.

(e)Lightly tension sling cables. Adjust turnbuckles as required to obtain even tension. Increase cable tension to relieve load on attach fittings.

(f)Remove front and rear tapered attach bolts and split sleeves as follows:

NOTE : Remove tapered connections from front and rear fittings singly. A centering bolt is to be inserted in the place of each removed connection before a further connection is removed. The steps described apply to the removal of one tapered connection only.

1 Remove cotter pin (58), castellated nut (59) and washer (60).

2 Remove tapered attach bolt (62) from split sleeve (61) using extraction tool.

NOTE : Use extraction tool P/N 98A53407564100 (Part of P/N 98A53407564001) for front tapered attach bolt and extraction tool P/N 98A53407564200 (Part of P/N 98A53407564001) for rear tapered attach bolt.

3 Carefully press out split sleeve (61) from fitting.

4 Insert stabilizer centering bolt in place of split sleeve and tighten.

NOTE : Use centering bolt P/N 98A55507589100 (Part of P/N 98A55507589000) for front fitting and centering bolt P/N 98A55507589200 (Part of P/N 98A55507589000) for rear fitting.

(g)Remove center tapered attach bolts and split sleeves.

NOTE : The steps described apply to the removal of one tapered connection only.

1 Remove cotter pin (58), castellated nut (59) and washer (60).

2 Remove tapered attach bolt (62) from split sleeve (61) using extraction tool P/N 98A53407564200 (Part of P/N 98A53407564001).

3 Carefully press out split sleeve (61) from fitting.

(h)Remove centering bolts from front and rear fittings.

**ON A/C ALL

(5)Hoisting (Removal) (Ref. Fig. 406, 407, 408)

(a)Hoist stabilizer clear of aircraft and lower to a practical height for handling.

(b)Slowly pay out cables (68) until weight is taken entirely by cables (51).

(c)Disconnect cables (55) from cables (68).

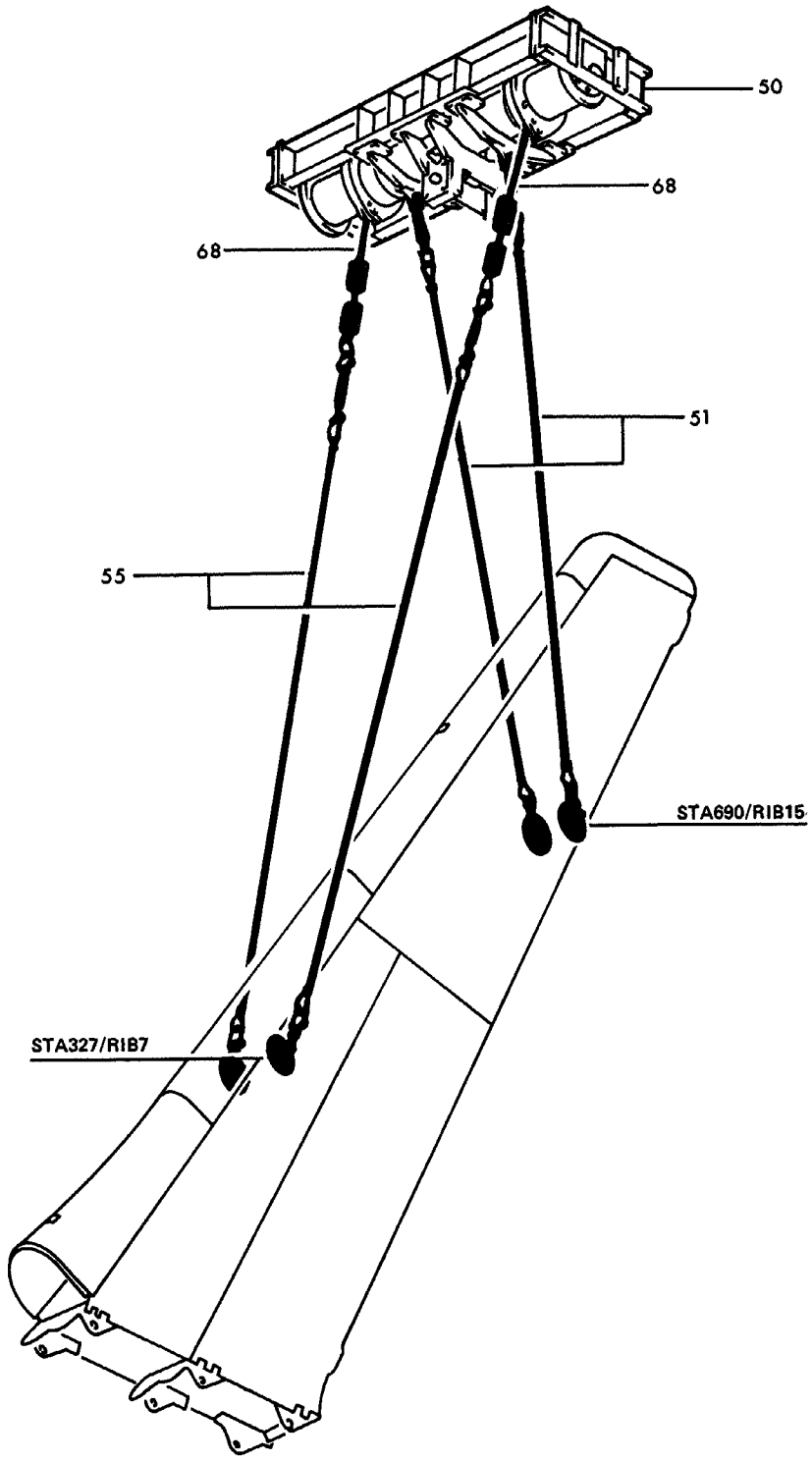
(d)Install lifting brackets (69) in rear main attach fittings.

(e)Connect cables (68) to lifting brackets (69).

(f)Wind in cables (68) and rotate stabilizer to the transport attitude.

(g)Place stabilizer in suitable support and remove cables (51, 55, 68).

(h)Remove lifting brackets (69).



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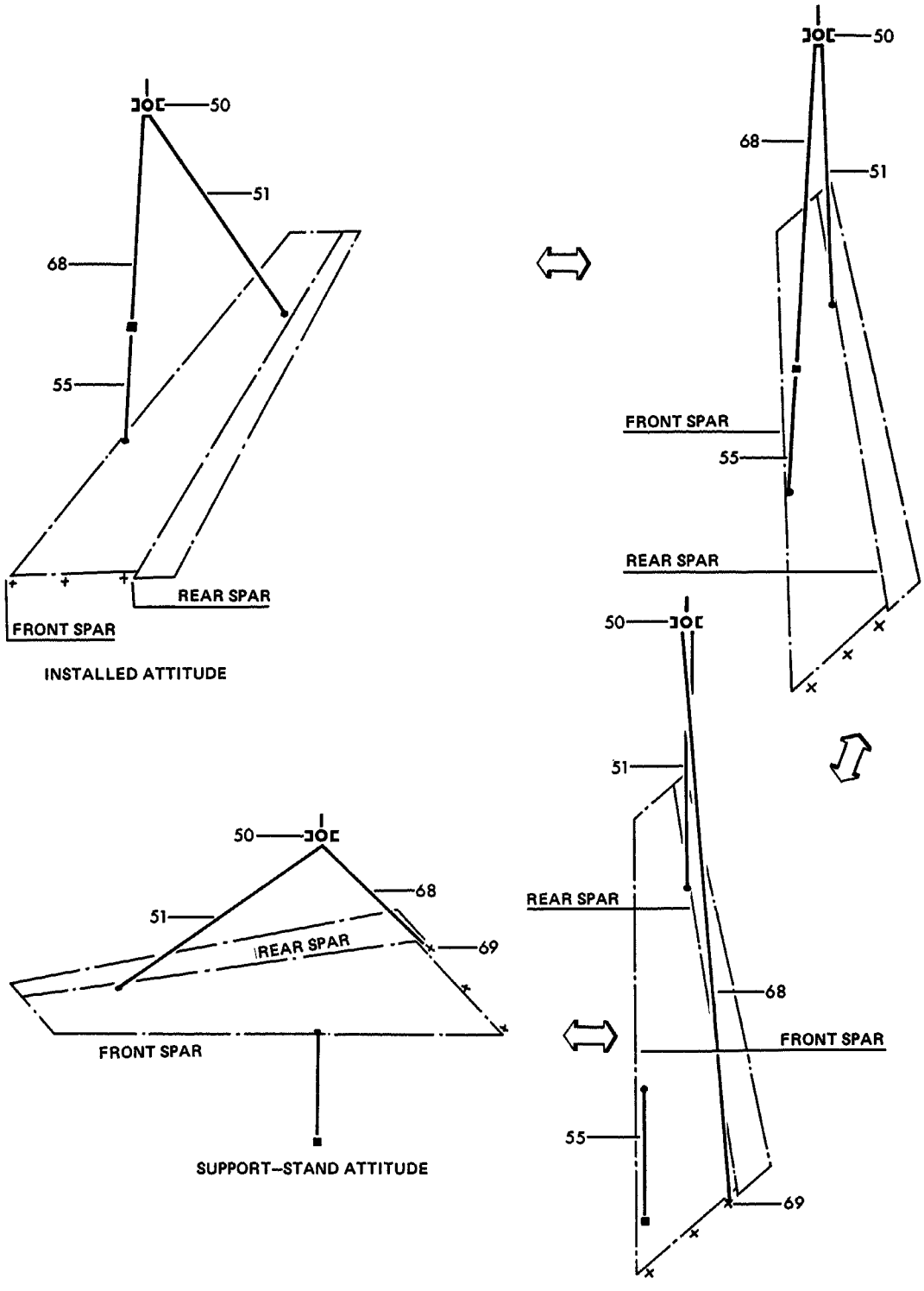
Hoisting - Installation Attitude
Figure 406



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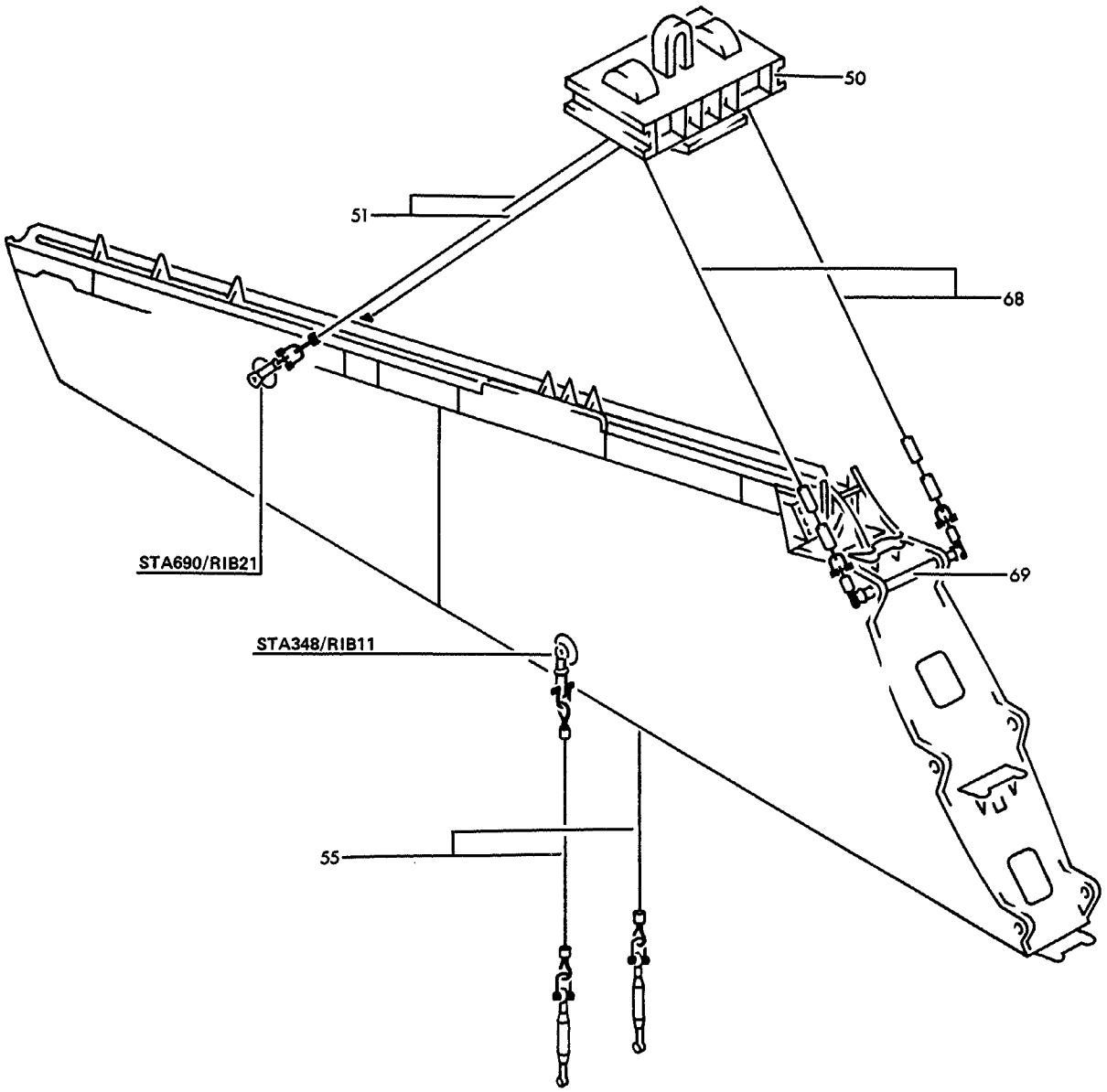
Hoisting - Turning
Figure 407



B M 6 55 30 11 4 BU M 0–15

Hoisting - Support Stand Attitude
Figure 408

C. Preparation of Replacement Components
(1)Transfer the following item to replacement component.
- Flight control system
- Hydraulic system
- Electric system
- Antennas
- Structure
  - leading edges
  - tip
  - trailing edge access panels

D. Preparation for Installation
(1)Clean all connecting hardware, attach fittings, bellcranks and pushrods on vertical stabilizer spar box and fuselage with cleaning agent (Mat. No. 11-004).
(2)Check vertical stabilizer split sleeves (61), tapered attach bolts (62), bolts (45), bushes (47, 63) and bearings (48) for serviceability (Ref. 55-36-39, P. Block 601) (Ref. Fig. 409, 410, 411).
(3)Carry out Inspection/Check of main attach fittings and transverse load fittings (Ref. 55-36-11, P. Block 601) of stabilizer and fuselage.

E. Installation
(1)Hoisting (Installation) (Ref. Fig. 406, 407, 408)
(a)Install lifting brackets (69).
(b)Attach cables (51, 55, 68) to stabilizer.
(c)Hoist stabilizer clear of support to a practical height for handling.
(d)Slowly pay out cables (68) until weight is taken entirely by cables (51).
(e)Disconnect cables (68) from lifting brackets (69) and remove lifting brackets (69).
(f)Connect cables (55) to cables (68).
(g)Wind in cables (68) to bring stabilizer to installation attitude.
(h)Hoist stabilizer into installing position.

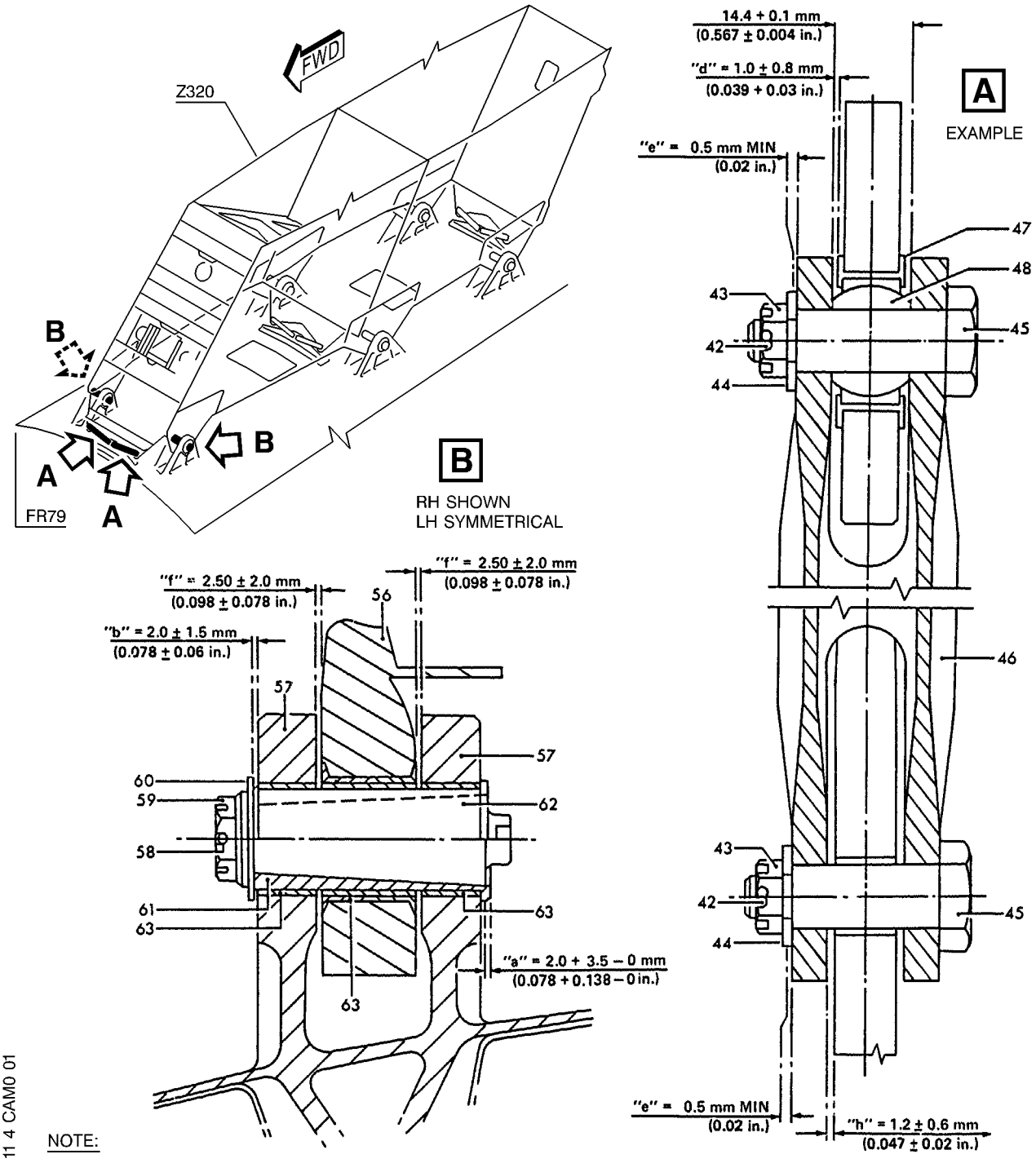
(2)Installation of Attachment Bolts (Ref. Fig. 403, 404, 405)
(a)Insert centering bolt P/N 98A55507589100 in each front fitting.
(b)Insert centering bolt P/N 98A55507589200 in each rear fitting.
(c)Tighten centering bolts in front and rear fittings.

CAUTION : A LACK OF GREASE IN THE JOINT CAN RESULT IN PREMATURE MECHANICAL LOCK-UP OF THE TAPERED BOLT ASSEMBLY. IF A BOLT IS NOT ENGAGED SUFFICIENTLY, THE SLEEVE WILL NOT EXPAND CORRECTLY AND THIS CAN CAUSE THE BOLT TO ROTATE FURTHER.

(d)Apply grease (Mat. No. 04-018) to:
- the inside of the split sleeve (61),
- the mating surface of the tapered attach bolt (62),
- the thread of the tapered attach bolt (62),
- the mating surface of the nut (59).

(e)Insert the split sleeve (61) and the attach bolt (62) in each center fitting.
NOTE : Do not apply grease between the split sleeve external surface and the fuselage fittings.
R NOTE : There is no special requirement with regards to split
R orientation. As an option only and to ease the drainage of
R water, the split in the sleeve can be orientated in a lower
R position.

(f)Not applicable.
CAUTION : APPLY AND KEEP A CONTINUOUS PRESSURE WITH YOUR HAND TO THE INBOARD SIDE OF THE SPLIT SLEEVE. THIS MAKES SURE THAT THE SLEEVE STAYS FLUSH AT THE FITTING UNTIL YOU HAVE INSTALLED AND TORQUED THE TAPERED BOLT AND THE NUT. THIS WILL PREVENT DAMAGE TO THE SPLIT SLEEVE.
R (g)Slacken centering bolts in front and rear fittings and adjust
R gaps between main attach fittings (56) and frame fittings (57)
R as follows:
1 Gap 'f' at front fittings to 2.5 ±2.0 mm (0.098 ±0.078 in.) (Ref. Fig. 409).
2 Gap 'k' at center fittings to 2.4 ±1.9 mm (0.094 ±0.074 in.) (Ref. Fig. 410).
3 Gap 'c' at rear fittings to 2.4 ±1.9 mm (0.094 ±0.074 in.) (Ref. Fig. 411).
(h)Apply grease (Mat. No. 04-018) to bolts (45).
(j)Position forked links (46) and install bolts (45), washers (44) and nuts (43).
NOTE : Make certain that items are located as noted during removal.
(k)Remove centering bolts P/N 98A55507589100 from front main and frame fittings.
CAUTION : A LACK OF GREASE IN THE JOINT CAN RESULT IN PREMATURE MECHANICAL LOCK-UP OF THE TAPERED BOLT ASSEMBLY. IF A BOLT IS NOT ENGAGED SUFFICIENTLY, THE SLEEVE WILL NOT EXPAND CORRECTLY AND THIS CAN CAUSE THE BOLT TO ROTATE FURTHER.
(l)Apply grease (Mat. No. 04-018) to:
- the inside of the split sleeve (61),



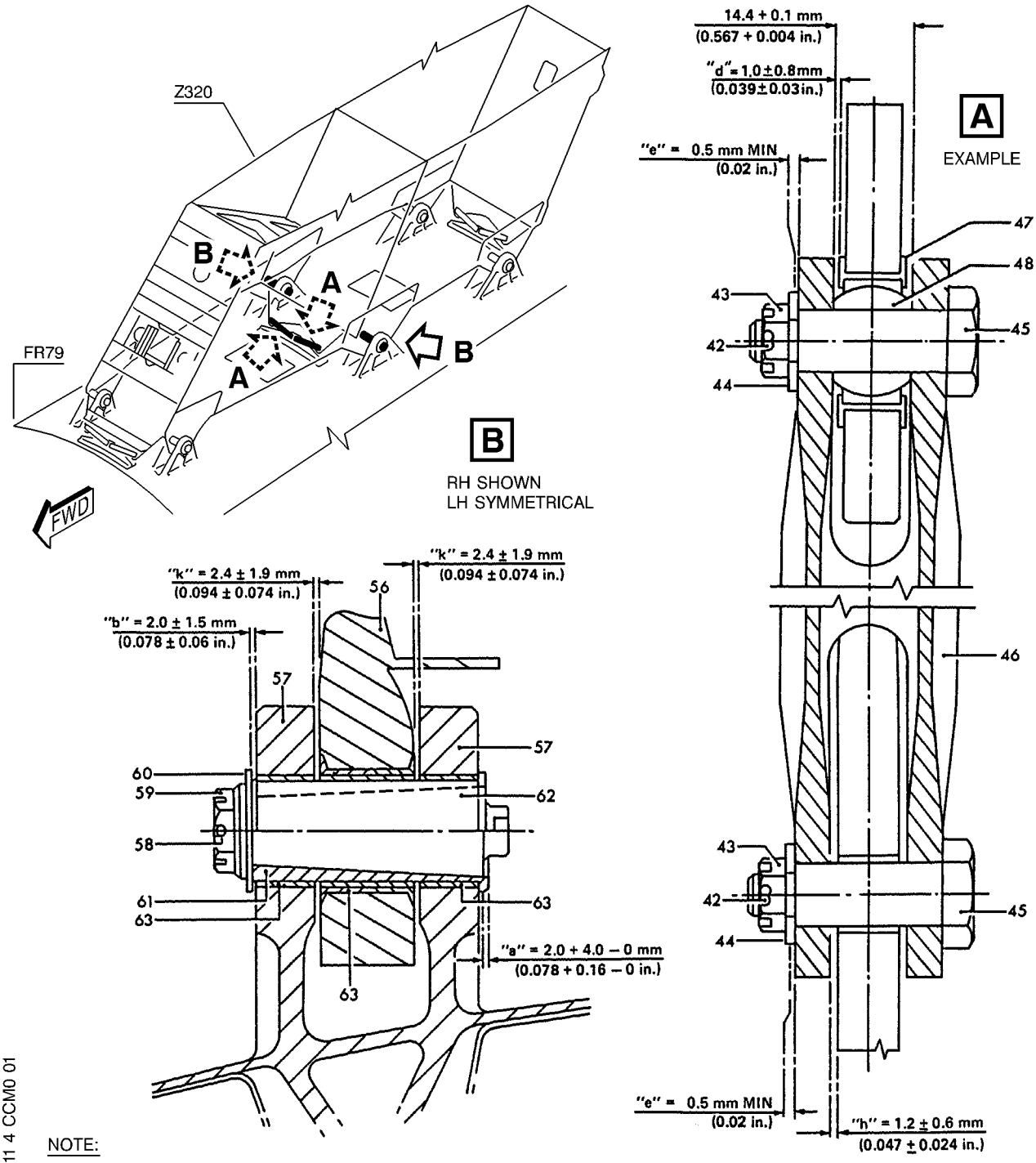
BM6 55 30 11 4 CAM0 01

NOTE:

1. TORQUE NUTS (59) TO 40 m.daN (295 lbf. ft.)
2. ALLOW A 10 MINUTES WAITING PERIOD FOR GREASE TO SQUEEZE OUT AND THEN TORQUE AGAIN TO 40 m.daN (295 lbf. ft.)
3. BACK OFF NUTS (59) MAINTAINING RESIDUAL TORQUE 10/20 m.daN (73.8/147.5 lbf. ft.)
4. TORQUE NUTS (59) TO 30/35 m.daN (221.3/258.2 lbf.ft.)

Front Fittings - Dimensions 1
Figure 409

R



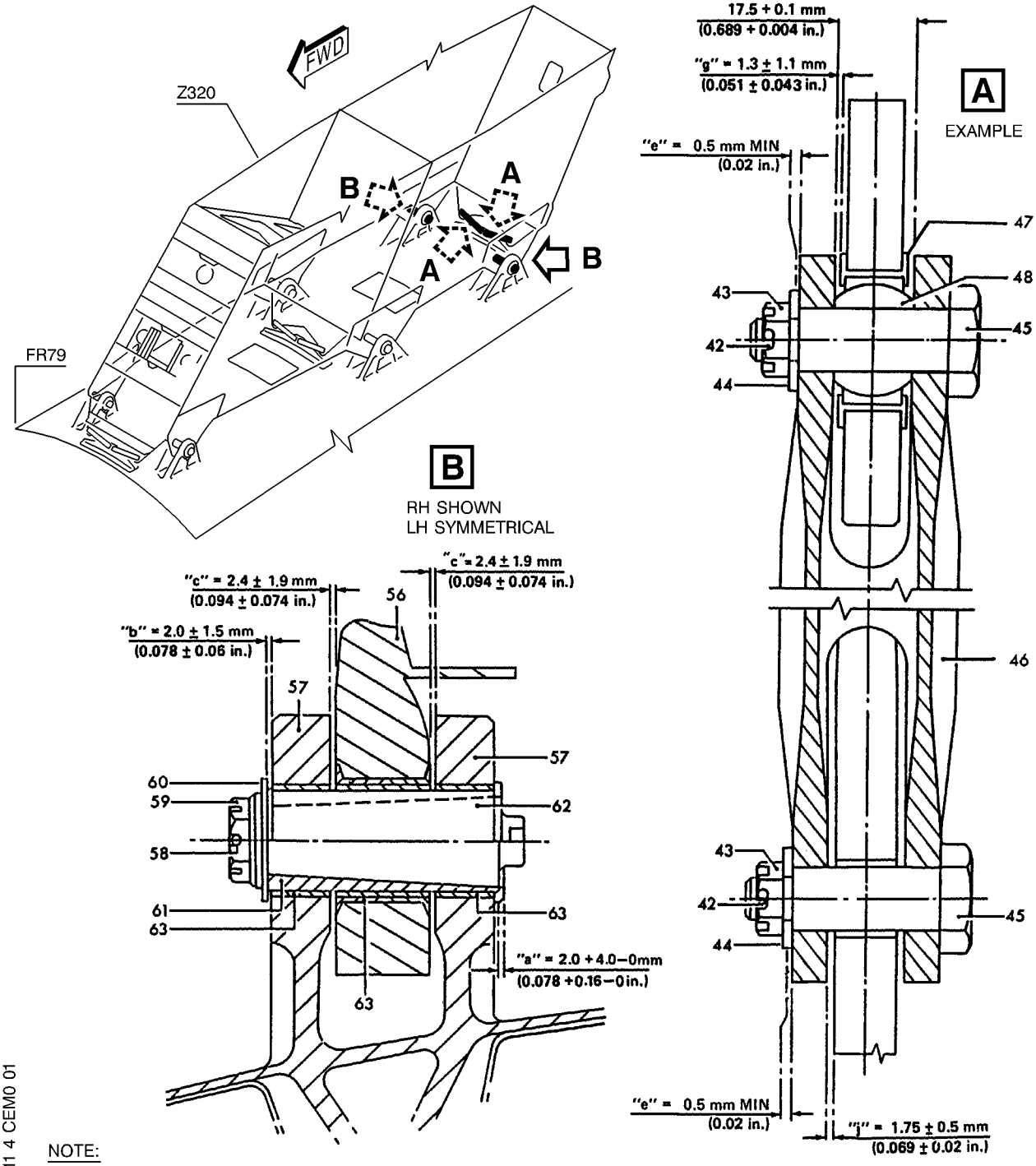
BM6 55 30 11 4 CCM0 01

NOTE:

1. TORQUE NUTS (59) TO 40 m.daN (295 lbf. ft.)
2. ALLOW A 10 MINUTES WAITING PERIOD FOR GREASE TO SQUEEZE OUT AND THEN TORQUE AGAIN TO 40 m.daN (295 lbf. ft.)
3. BACK OFF NUTS (59) MAINTAINING RESIDUAL TORQUE 10/20 m.daN (73.8/147.5 lbf. ft.)
4. TORQUE NUTS (59) TO 30/35 m.daN (221.3/258.2 lbf.ft.)

Center Fittings - Dimensions 2
Figure 410

R



BM6 55 30 11 4 CEM0 01

NOTE:

1. TORQUE NUTS (59) TO 40 m.daN (295 lbf. ft.)
2. ALLOW A 10 MINUTES WAITING PERIOD FOR GREASE TO SQUEEZE OUT AND THEN TORQUE AGAIN TO 40 m.daN (295 lbf. ft.)
3. BACK OFF NUTS (59) MAINTAINING RESIDUAL TORQUE 10/20 m.daN (73.8/147.5 lbf. ft.)
4. TORQUE NUTS (59) TO 30/35 m.daN (221.3/258.2 lbf.ft.)

Rear Fittings - Dimensions 3
Figure 411

R

- the mating surface of the tapered attach bolt (62),
- the thread of the tapered attach bolt (62),
- the mating surface of the nut (59).

(m)Insert the split sleeve (61) and the attach bolt (62) in each
R front fitting.
NOTE : Do not apply grease between the split sleeve external surface and the fuselage fittings.
R NOTE : There is no special requirement with regards to split
R orientation. As an option only and to ease the drainage of
R water, the split in the sleeve can be orientated in a lower
R position.

(n)Not applicable.

CAUTION : APPLY AND KEEP A CONTINUOUS PRESSURE WITH YOUR HAND TO THE INBOARD SIDE OF THE SPLIT SLEEVE. THIS MAKES SURE THAT THE SLEEVE STAYS FLUSH AT THE FITTING UNTIL YOU HAVE INSTALLED AND TORQUED THE TAPERED BOLT AND THE NUT. THIS WILL PREVENT DAMAGE TO THE SPLIT SLEEVE.

(p)Remove centering bolts P/N 98A55507589200 from rear main and frame fittings.

CAUTION : A LACK OF GREASE IN THE JOINT CAN RESULT IN PREMATURE MECHANICAL LOCK-UP OF THE TAPERED BOLT ASSEMBLY. IF A BOLT IS NOT ENGAGED SUFFICIENTLY, THE SLEEVE WILL NOT EXPAND CORRECTLY AND THIS CAN CAUSE THE BOLT TO ROTATE FURTHER.

(q)Apply grease (Mat. No. 04-018) to:
- the inside of the split sleeve (61),
- the mating surface of the tapered attach bolt (62),
- the thread of the tapered attach bolt (62),
- the mating surface of the nut (59).

(r)Insert the split sleeve (61) and the attach bolt (62) in each
R rear fitting.
NOTE : Do not apply grease between the split sleeve external surface and the fuselage fittings.
R NOTE : There is no special requirement with regards to split
R orientation. As an option only and to ease the drainage of
R water, the split in the sleeve can be orientated in a lower
R position.

(s)Not applicable.

CAUTION : APPLY AND KEEP A CONTINUOUS PRESSURE WITH YOUR HAND TO THE INBOARD SIDE OF THE SPLIT SLEEVE. THIS MAKES SURE THAT THE SLEEVE STAYS FLUSH AT THE FITTING UNTIL YOU HAVE INSTALLED AND TORQUED THE TAPERED BOLT AND THE NUT. THIS WILL PREVENT DAMAGE TO THE SPLIT SLEEVE.

(t)Install washers (60) and nuts (59) on all tapered attach bolts (62).
NOTE : Washers (60) are available in four thicknesses to allow cotter pin hole alignment with correct torque.

(u)Torque nuts (59) in diagonal sequence as follows:
1 TORQUE nuts (59) to 40 m.daN (295 lbf.ft.) to seat split sleeves (61) and tapered attach bolts (62).
R 2 Wait 10 minutes for grease to squeeze out.
R 3 TORQUE the nuts (59) again to 40 m.daN (295 lbf.ft.).
R 4 Back off nuts (59) maintaining a residual torque of between 10

and 20 m.daN (73.8 and 147.5 lbf.ft.).

R 5 TORQUE nuts (59) to between 30 and 35 m.daN (221.3 and 258.2 lbf.ft.) to align cotter pin hole.

R 6 Safety nuts (59) with cotter pins (58).

(v)Make certain that gap 'b' is 2.0 ±1.5 mm (0.078 ±0.06 in.) (Ref. Fig. 409, 410, 411).

(w)Check that depth 'a' between end-face of tapered attach bolt (62) and end-face of split sleeve (61) is 2.0 +3.5 -0 mm (0.078 +0.138 -0 in.) for the FWD connections and 2.0 +4.0 -0 mm (0.078 +0.16 -0 in.) for the MID and AFT connections (Ref. Fig. 409, 410, 411).

NOTE : If depth 'a' exceeds limits, tapered attach bolt and split sleeve must be replaced.

(x)Tighten castellated nuts (43) in small equal increments so that:

1 Gap "e" is a minimum 0.5 mm (0.02 in.)
2 Gap "d" is 1.0 ± mm + 0.8 mm (0.039 +0.03 in.)
3 Gap "g" is 1.3 ±1.1 mm(0.051 ±0.043 in.)
4 Gap "h" is 1.2 ±0.6 mm(0.047 ±0.024 in,)
5 Gap "j" is 1.75 ±0.5 mm(0.069 ±0.02 in.)
(Ref. Fig. 409, 410, 411).

**ON A/C 001-005, 102-200,

(y)Safety nuts (43) with cotter pins (42).

(z)Remove the old red paint and apply new red paint on the washer (60), the nut (59), the bolt thread end (62) and the frame fitting (57).

(aa)Apply corrosion-preventive agent (Mat. No. 05-005) to visible cadmium plated steel parts.

(ab)Remove sling from vertical stabilizer.

(ac)Remove hoisting lugs and clean with cleaning agent (Mat. No. 11-004).

(ad)Apply corrosion-preventive paste (Mat. No. 05-002) to hoisting lugs and install in vertical stabilizer, flush with skin.

(ae)Install self-adhesive discs (Mat. No. 05-052) over hoisting points (Ref. 11-20-00, P. Block 1).

**ON A/C 006-101,

(y)Safety nuts (43) with cotter pins (42).

(z)Remove the old red paint and apply new red paint on the washer (60), the nuts (59), the bolt thread end (61) and the frame fitting (57).

(aa)Apply corrosion-preventive agent (Mat. No. 05-005) to visible cadmium plated steel parts.

(ab)Remove sling from vertical stabilizer.

(ac)Install screwed plastic plugs in vertical stabilizer, flush with skin.

(ad)Install self-adhesive discs (Mat. No. 05-052) over hoisting points (Ref. 11-20-00, P. Block 1).

**ON A/C ALL

(3)Installation of Control Rods

(a)Install pushrods between bellcrank at RIB1 and variable stop unit

(Ref. 27-21-17, P. Block 401).
(4)Hydraulic Pipeline Installation (Ref. Fig. 402)
(a)Position container for hydraulic fluid spillage.
(b)Remove hydraulic blanking caps.
(c)Connect hydraulic pipelines (26, 27) using hydraulic fluid as a thread lubricant, and tighten unions (Ref. 20-23-11, P. Block 1 and 20-23-12, P. Block 1).
(d)Clean up spilled hydraulic fluid (Ref. 51-00-00, P. Block 701).
(e)Install clamps (21) and fiberglass cord (25).
(f)Mark location of fiberglass cord (25) with paint (Mat. No. 16-002).
(g)Install panel (18) with screws (19) and washers (20).
(h)Install bonding strap (30), washer (31) and bolt (32) (Ref. 20-28-11, P. Block 1).
(5)Electrical Connection (Ref. Fig. 401, 402)
(a)Install cable clamp (28) and screw (29) (Ref. Fig. 402).
(b)Install cable clamps (9) and spacers (10) with screws (8, 12, 15, 18) and washers (11).
(c)Remove blanking caps from all disconnected connectors and receptacles.
(d)Connect connector 6028 VC-A, electrical harness 1761 VB/2M to receptacle 6028 VC.
(e)Connect connector 6030 VC-A, electrical harness 1734 VB/1C to receptacle 6030 VC.
(f)Connect connector 6038 VC-A, electrical harness 1741 VB/7T to receptacle 6038 VC.
(g)Connect connector 6035 VC-A, electrical harness 1745 VB/2U to receptacle 6035 VC.
(h)Connect connector 6008 VC-A, electrical harness 1718 VB/1U to receptacle 6008 VC.
(j)Connect connector 6046 VC-A, electrical harness 1742 VB/2C to receptacle 6046 VC.
(k)Connect connector 6042 VC-A, electrical harness 1743 VB/8T to receptacle 6042 VC.
(6)Install rudder (Ref. 27-21-21, P. Block 401).
(7)Install rudder servo controls (Ref. 27-24-11, P. Block 401).
(8)Remove safety clips and tags and close circuit breakers 6RS1, 6RS2, 4RE1, 4RE2, 301CU, 305CA1, 306CA1, 312CA1, 312CA2, 306CA2, 305CA2, 1CT, 1CB and 2CB.

G. Test
(1)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(2)Pressurize hydraulic system (Ref. 29-10-00, P. Block 301) and check that hydraulic unions are free from leaks (Ref. 29-00-00, P. Block 601).
(3)Carry out operational test of HF System (Ref. 23-11-00, P. Block 501).
(4)Carry out operational test of VOR System (Ref. 34-55-00, P. Block 501).
(5)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

H. Close-Up

CAUTION : SERVO CONTROL PISTON-RODS MUST NOT BE TREATED WITH WATER REPELLENT PROTECTIVE COATING.

(1) Check coating of moisture-removing oil (Mat. No. 05-027) for good condition on interface of vertical stabilizer and fuselage, vertical stabilizer trailing edge, hinge arms and servo controls, and renew as necessary (Ref. 51-75-10, P. Block 801).

(2) Install or close vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).

(3) Install dorsal fin (Ref. 53-10-67, P. Block 401).

(4) Install LH and RH side fairings (Ref. 53-10-69, P. Block 401).

(5) Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(6) Close vertical stabilizer access doors 311BZ and 311AZ.

(7) Remove access ladder.

(8) Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).

(9) Remove access platform and crane.

VERTICAL STABILIZER SPAR BOX - DESCRIPTION AND OPERATION

1. General

A. The vertical stabilizer spar box is the main structural component of the vertical stabilizer and comprises; skin panels, ribs, spar attach flanges and spars. The skin panels and spar attachment flanges are a single bonded unit forming the integral structure. All components are constructed from carbon fiber reinforced plastic (CFRP).

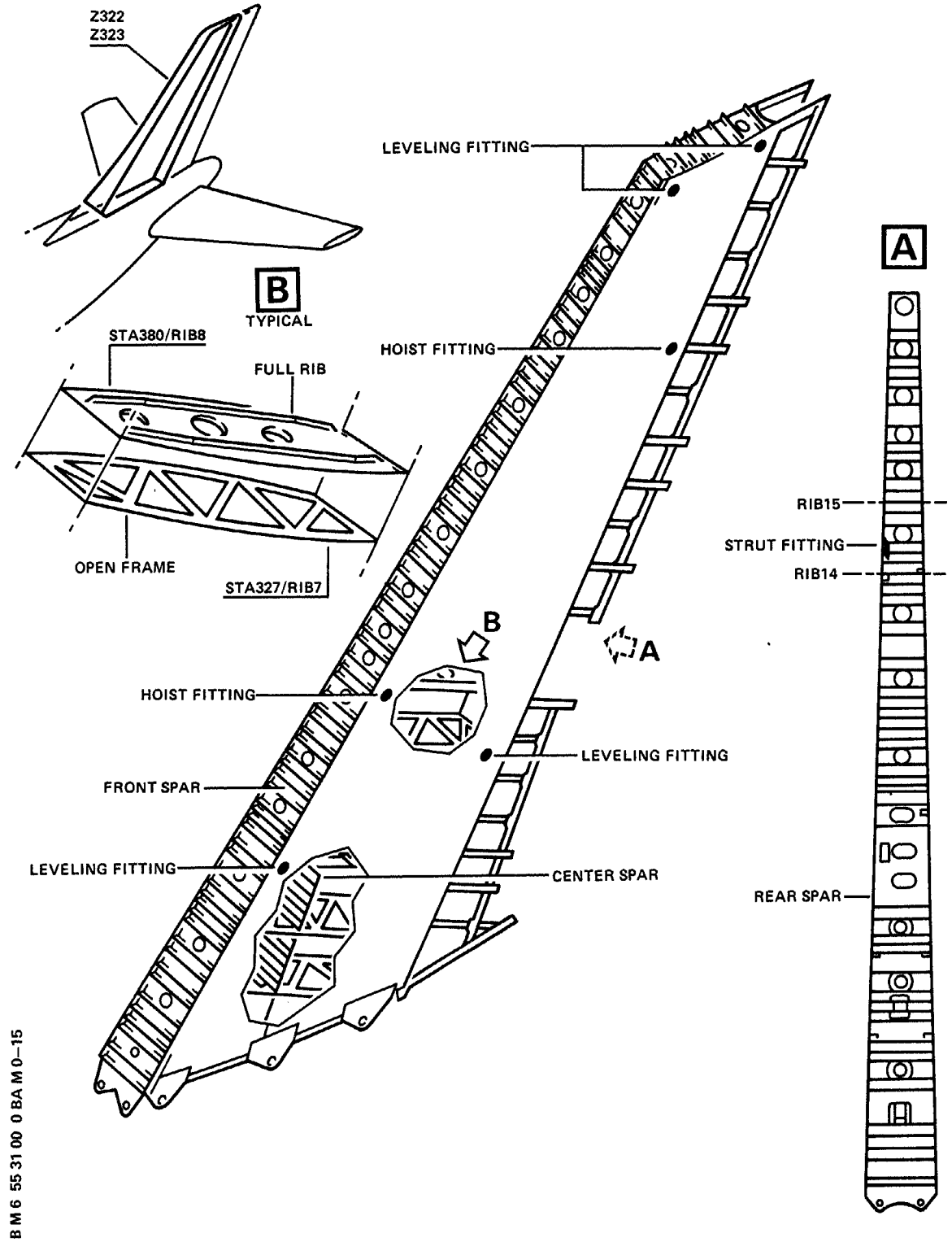
B. The leading edge sections (Ref. 55-32-00) and tip (Ref. 55-34-00) are attached by screws to the front spar and STA800(RIB18) respectively. The trailing edge framework forms a separate part of the spar box. The rudder hinge arm attach fittings are riveted to the rear spar, ribs and integral structure (Ref. 55-36-00).

2. Description (Ref. Fig. 001)

A. The vertical stabilizer spar box comprises front, center, and rear spar, ribs, and skin panels. The trailing edge framework is riveted to the rear spar and skin panels of the spar box (Ref. 55-33-00).

B. Spars
(1) The front spar extends from STA0(RIB1) to STA800(RIB18). It comprises an integral plate strengthened by stiffeners and includes a transverse load fitting at the lower end.
(2) The center spar extends from STA0(RIB1) to STA221(RIB5). It comprises an integral plate strengthened by stiffeners and includes a transverse load fitting at the lower end.
(3) The rear spar extends from STA0(RIB1) to STA800(RIB18). It comprises an integral plate strengthened by stiffeners and includes a transverse load fitting at the lower end.
(4) A strut fitting is riveted on the LH side of the rear spar at STA633 (RIB14). This fitting is an attach point for a rudder fixture which is used during hinge arm No. 4 removal/installation.

C. Ribs
(1) The spar box contains 18 ribs. RIB1(STA0) and RIB18(STA800) are parallel with the aircraft datum but the rest are at right angles to the rear spar. RIB1(STA0), RIB18(STA800) and all ribs adjacent to a hinge fitting are full-web ribs with lightening holes. All other ribs are of the open-frame type consisting of a bonded framework section and angle made from CFRP.



Vertical Stabilizer Spar Box
Figure 001

R EFFECTIVITY: 001-005, 102-200,

PIA

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D. Skin Panels

(1) Each side of the vertical stabilizer is covered with CFRP skin panels, which are part of the integral structure. The skin panels are strengthened by stringers running the full length of the spar box parallel to rear spar. Ribs and spars are riveted to the panels.

E. Hoist and Leveling Fittings

(1) Four attach fittings for levelling equipment and four anchor nuts for position gages are riveted to the skin panel on the left side of the vertical stabilizer. These are located adjacent to the front spar between STA168(RIB4) and STA221(RIB5) and between STA758(RIB16) and STA800(RIB18) and adjacent to the rear spar between STA274(RIB6) and STA327(RIB7) and between STA833(RIB17) and STA800(RIB18).

(2) Two hoist fittings are located on each side of the vertical stabilizer. The upper fitting is located adjacent to the rear spar at STA690(RIB15) and the lower fitting is located adjacent to the front spar at STA327(RIB7). Each fitting comprises an eyebolt screwed into a threaded bracket. The eyebolts are normally installed with the eye end innermost. When required for use, the eyebolts may be removed and installed with the eye end protruding outside the spar box.

VERTICAL STABILIZER SPAR BOX - DESCRIPTION AND OPERATION

1. General

A. The vertical stabilizer spar box is the main structural component of the vertical stabilizer and comprises; skin panels, ribs, spar attach flanges and spars. The skin panels and spar attachment flanges are a single bonded unit forming the integral structure. All components are constructed from carbon fiber reinforced plastic (CFRP).

B. The leading edge sections (Ref. 55-32-00) and tip (Ref. 55-34-00) are attached by screws to the front spar and STA800(RIB18) respectively. The trailing edge framework forms a separate part of the spar box. The rudder hinge arms are riveted to the rear spar

2. Description (Ref. Fig. 001)

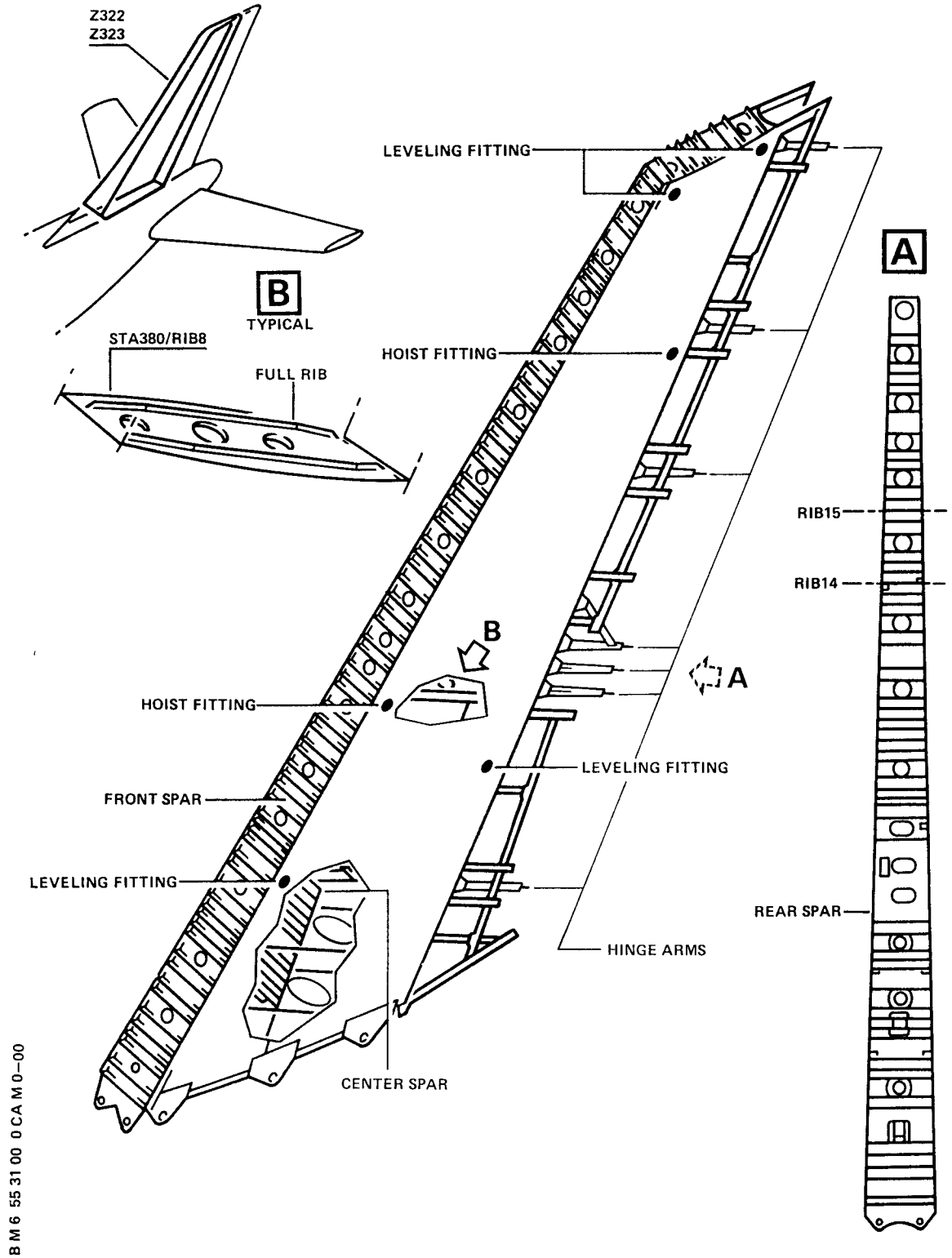
A. The vertical stabilizer spar box comprises front, center, and rear spar, ribs, hinge arms and skin panels. The trailing edge framework is riveted to the rear spar and skin panels of the spar box (Ref. 55-33-00).

B. Spars
(1) The front spar extends from STA0(RIB1) to STA800(RIB18). It comprises an integral plate strengthened by stiffeners.
(2) The center spar extends from STA0(RIB1) to STA274(RIB6). It comprises an integral plate strengthened by stiffeners.
(3) The rear spar extends from STA0(RIB1) to STA800(RIB18). It comprises an integral plate strengthened by stiffeners.
(4) The hinge arms (BR1 thru BR7) are attached to the rear spar. The hinge arms are aluminium alloy machined components. A GFRP insulation layer is fitted in all CFRP/Aluminium contact areas. The lug ends of BR1 thru BR3 and BR7 are made from titanium.

C. Ribs
(1) The spar box contains 18 ribs. RIB1(STA0) and RIB18(STA800) are parallel with the aircraft datum but the rest are at right angles to the rear spar. RIB1(STA0) thru RIB18(STA800) are full-web ribs with man holes up to RIB5 (STA221) and inspection holes up to RIB10 (STA425).

D. Skin Panels
(1) Each side of the vertical stabilizer is covered with CFRP skin panels, which are part of the integral structure. The skin panels are strengthened by stringers running the full length of the spar box parallel to rear spar. Ribs and spars are riveted to the panels.

E. Hoist and Leveling Fittings
(1) Four attach fittings for levelling equipment and four anchor nuts for position gages are riveted to the skin panel on the left side of the vertical stabilizer. These are located adjacent to the front spar between STA168(RIB4) and STA221(RIB5) and between STA758(RIB16) and STA800(RIB18) and adjacent to the rear spar between STA274(RIB6) and STA327(RIB7)



Vertical Stabilizer Spar Box
Figure 001

and between STA833(RIB17) and STA800(RIB18).

(2)Two hoist points are located at STA327(RIB7) and STA690(RIB15) LH and RH sides. Each hoisting point consists of a threaded sleeve, bonded into the section and a screwed plastic plug, which is normally flush with the section contour. The screwed plastic plug must be removed during removal/installation procedure of spar box.

VERTICAL STABILIZER LEADING EDGE - DESCRIPTION AND OPERATION

1. General

A. The vertical stabilizer leading edge comprises three aerodynamic sections with panel designation 322AL, 322BL and 322CL.

2. Description (Ref. Fig. 001)

R **ON A/C 001-005, 102-200,

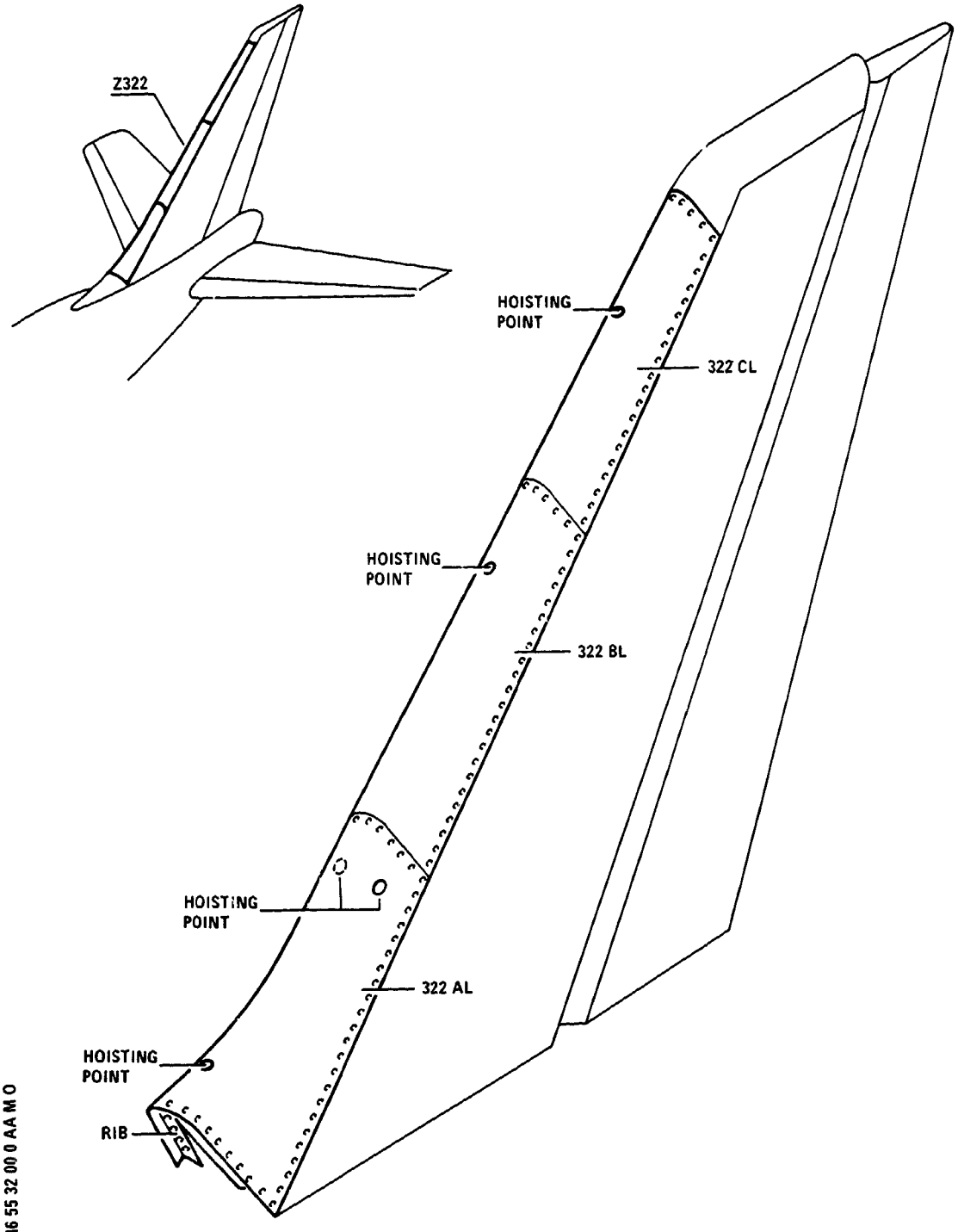
A. Each panel is constructed from laminations of resin-fiber composites over a honeycomb core. The sections are attached to flanges of the front spar and to butt straps by countersunk screws.

B. Hoisting points are provided in the leading edge sections. Each hoisting point consists of a threaded sleeve, bonded into the section and a hoisting lug. The hoisting lug is normally flush with the section contour, but when required for use, it is removed and installed in reverse so that the eye-end of the lug protrudes beyond the section contour.

R **ON A/C 006-101,

A. Each panel is constructed from laminations of resin-fiber composites over a honeycomb core. The sections are attached to flanges of the front spar and to butt straps by countersunk screws.

B. Hoisting points are provided in the leading edge sections. Each hoisting point consists of a threaded sleeve, bonded into the section and a screwed plastic plug which is normally flush with the section contour.
The screwed plastic plugs must be removed during removal/installation procedure of leading edge.



Vertical Stabilizer Leading Edge
Figure 001

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).
CAUTION : CARE MUST BE TAKEN NOT TO DAMAGE ANTENNA OR ANTENNA CONNECTIONS DURING REMOVAL AND INSTALLATION OF PANEL 322AL.

1. Reasons for the Job

A. Access to HF antenna

B. Access to spar box

R **ON A/C 001-005, 102-200,

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 8.5 to 13.5 m (29 to 44 ft.)
B. 98A55307577000	Sling - Leading Edge Lower, Vertical Stabilizer
C. 98A55307578000	Sling - Leading Edge Center and Upper, Vertical Stabilizer
D.	Circuit Breaker Safety Clips
E.	Crane, 18 m (59 ft.)
F. Material No. 05-002	Special Materials (Ref. 20-31-00)
G. Material No. 05-013	Special Materials (Ref. 20-31-00)
H. Material No. 05-052	Special Materials (Ref. 20-31-00)
J. Material No. 09-013	Sealants (Ref. 20-31-00)
K. Material No. 09-019	Sealants (Ref. 20-31-00)
L. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

- 11-20-00, P. Block 1	Exterior Placards and Markings
- 20-28-11, P. Block 1	Electrical Bonding
- 51-76-10, P. Block 801	Repair of Sealing
- 53-10-67, P. Block 401	Vertical Stabilizer Dorsal Fin
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-30-00, P. Block 801	Vertical Stabilizer

3. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Open, safety and tag the following circuit breaker:

PANEL	SERVICE	IDENT.	LOCATION
21VU	RADIO NAV & COM/HF1	4RE1	106/D 3
21VU	RADIO NAV & COM/HF2	4RE2	106/D12

(3)Position access platform.
(4)Position crane.
(5)Remove erosion protection tape from the leading edge panels (Ref. 55-30-00, P. Block 801).
NOTE : This step is only applicable if erosion protection tape is installed.
(6)Remove and discard self-adhesive discs covering hoisting points (Ref. Fig. 401).
(7)Remove hoisting lugs and install in reverse position.
(8)Remove dorsal fin (Ref. 53-10-67, P. Block 401).
NOTE : Applicable only if leading edge lower rib is to be removed.

R **ON A/C 006-101,

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 8.5 to 13.5 m (29 to 44 ft.)
B. 98A55307577001	Sling - Leading Edge Lower, Vertical Stabilizer
C. 98A55307578001	Sling - Leading Edge Center and Upper, Vertical Stabilizer
D.	Circuit Breaker Safety Clips
E.	Crane, 18 m (59 ft.)
F. Material No. 05-002	Special Materials (Ref. 20-31-00)
G. Material No. 05-013	Special Materials (Ref. 20-31-00)
H. Material No. 05-052	Special Materials (Ref. 20-31-00)
J. Material No. 09-013	Sealants (Ref. 20-31-00)
K. Material No. 09-019	Sealants (Ref. 20-31-00)
L. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

- 11-20-00, P. Block 1	Exterior Placards and Markings
- 20-28-11, P. Block 1	Electrical Bonding
- 51-76-10, P. Block 801	Repair of Sealing
- 53-10-67, P. Block 401	Vertical Stabilizer Dorsal Fin
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-30-00, P. Block 801	Vertical Stabilizer

3. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Open, safety and tag the following circuit breaker:

PANEL	SERVICE	IDENT.	LOCATION
21VU	RADIO NAV & COM/HF1	4RE1	106/D 3
21VU	RADIO NAV & COM/HF2	4RE2	106/D12

(3)Position access platform.
(4)Position crane.
(5)Remove erosion protection tape from the leading edge panels (Ref. 55-30-00, P. Block 801).
NOTE : This step is only applicable if erosion protection tape is installed.
(6)Remove and discard self-adhesive discs covering hoisting points (Ref. Fig. 401).
(7)Remove screwed plastic plugs.
(8)Remove dorsal fin (Ref. 53-10-67, P. Block 401).
NOTE : Applicable only if leading edge lower rib is to be removed.

**ON A/C ALL

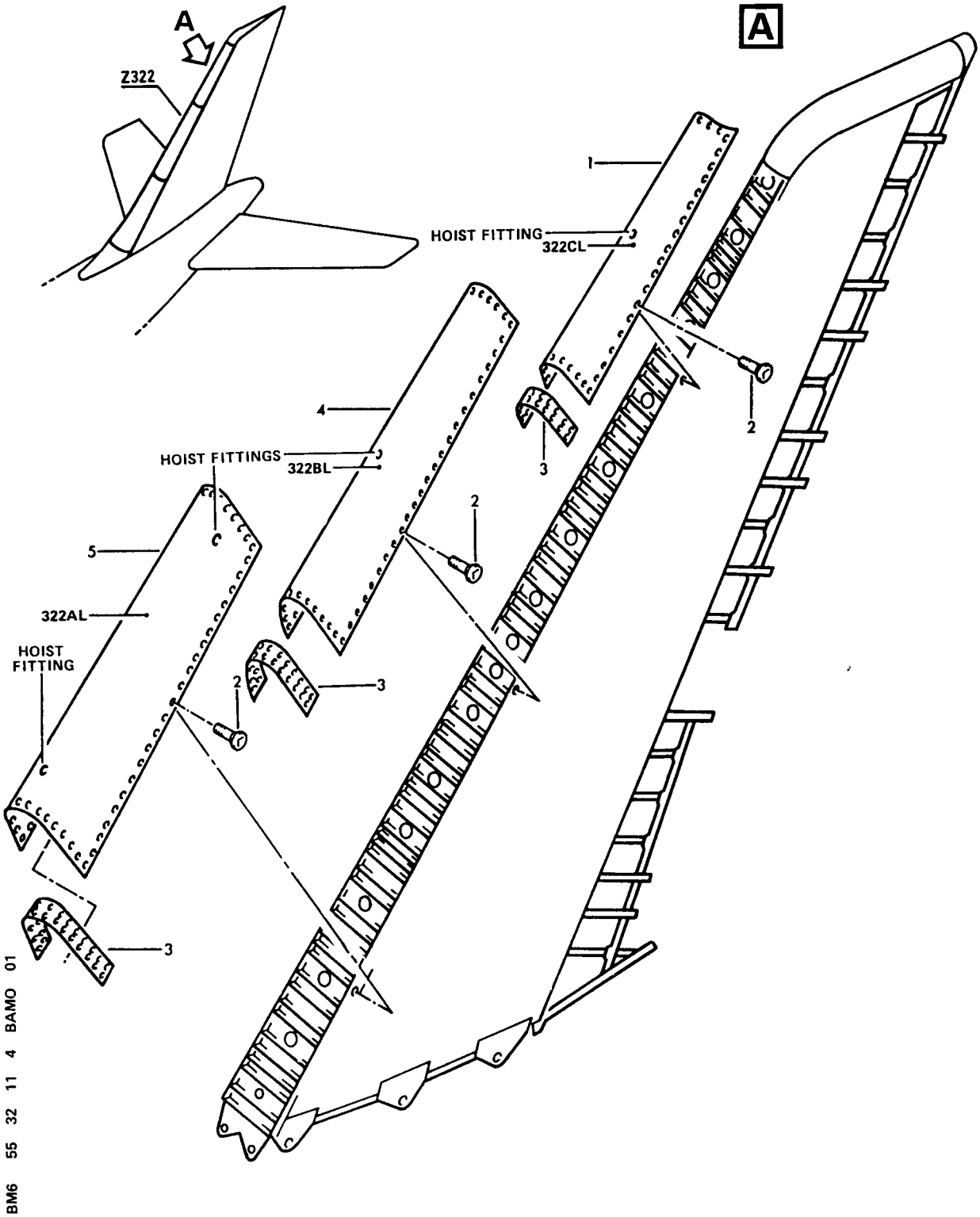
B. Removal (Ref. Fig. 401)

R **ON A/C 001-005, 102-200,

(1)Attach sling to hoisting points and crane.
NOTE : Sling P/N 98A55307577000 is used for panel 322AL (5) and sling P/N 98A55307578000 for panels 322BL (4) and 322CL (1).
(2)Lightly tension sling and remove screws (2).
CAUTION : TAKE CARE NOT TO DAMAGE ANTENNA WHEN REMOVING PANEL 322AL.
(3)Remove panels (1, 4, 5) and butt-straps (3).
(4)Remove sling.

C. Preparation for Installation
(1)Check sealant (Mat. No. 09-013) on mating surfaces of butt-straps (3) and vertical stabilizer for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of leading edge panels (1, 4, 5).

D. Installation
(1)Attach butt-straps (3) to panel (1, 4, 5) with screws (2).
(2)Attach sling to hoisting points and position panels (1, 4, 5), and install screws (2). For electrical bonding, refer to 20-28-11, P. Block 1.
(3)Remove sling.



Leading Edge Panels
Figure 401

R

NOTE : Gap 'a' should not exceed 3.0 mm (0.118 in.) (Ref. Fig. 402).

R **ON A/C 006-101,

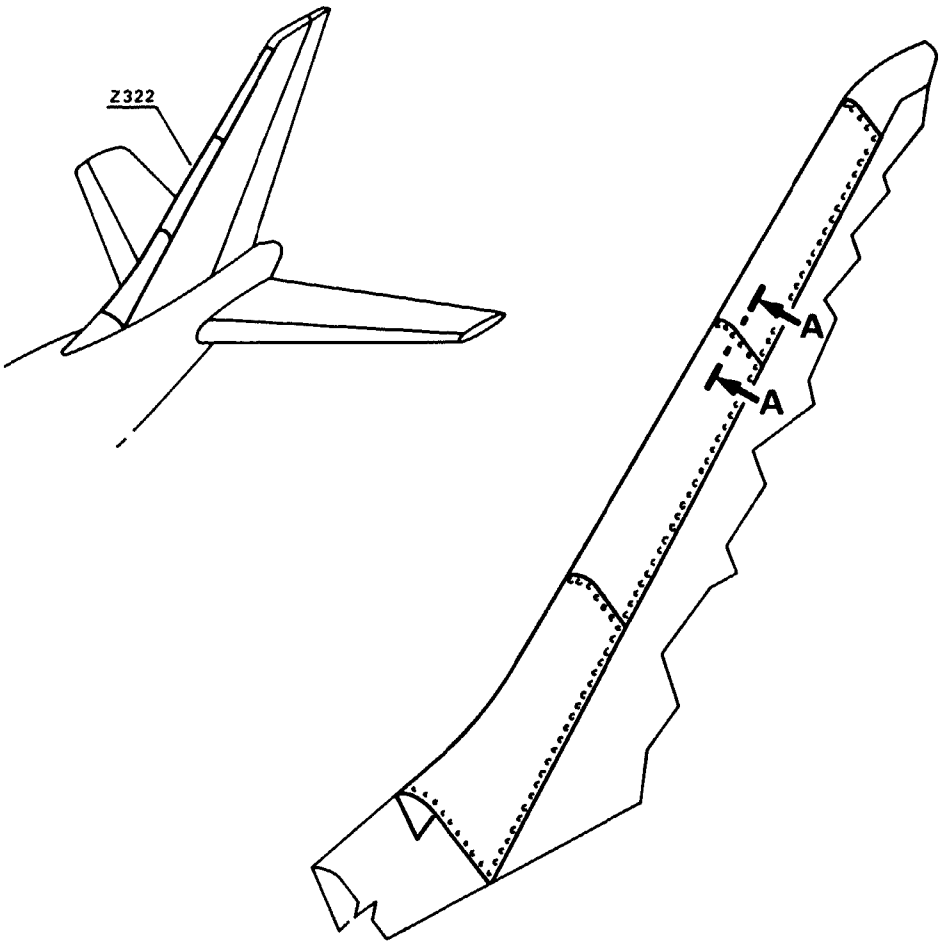
(1)Attach sling to hoisting points and crane.
NOTE : Sling P/N 98A55307577001 is used for panel 322AL (5) and sling P/N 98A55307578001 for panels 322BL (4) and 322CL (1).
(2)Lightly tension sling and remove screws (2).
CAUTION : TAKE CARE NOT TO DAMAGE ANTENNA WHEN REMOVING PANEL 322AL.
(3)Remove panels (1, 4, 5) and butt-straps (3).
(4)Remove sling.

C. Preparation for Installation
(1)Check sealant (Mat. No. 09-013) on mating surfaces of butt-straps (3) and vertical stabilizer for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of leading edge panels (1, 4, 5).

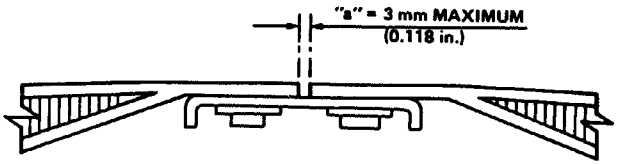
D. Installation
(1)Attach butt-straps (3) to panel (1, 4, 5) with screws (2).
(2)Attach sling to hoisting points and position panels (1, 4, 5), and install screws (2). For electrical bonding, refer to 20-28-11, P. Block 1.
(3)Remove sling.
NOTE : Gap 'a' should not exceed 3.0 mm (0.118 in.) (Ref. Fig. 402).

R **ON A/C 001-005, 102-200,

(4)Seal gaps between panels with sealant (Mat. No. 09-019).



SECTION
A-A
TYPICAL



B M 6 55 32 11 4 BC M 0–12

Gaps between Panels
Figure 402

E. Close-Up
(1)Remove hoisting lugs and degrease with cleaning agent (Mat. No. 11-004).
(2)Apply corrosion-preventive paste (Mat. No. 05-002) to hoisting lugs and install flush with panel contour.
(3)Install self-adhesive aluminum discs (Mat. No. 05-052) over hoisting points (Ref. 11-20-00, P. Block 1).
(4)Install erosion protection tape on the leading edge panels (Ref. 55-30-00, P. Block 801).
NOTE : This step is only applicable where erosion protection tape is specified.
(5)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(6)Install dorsal fin (Ref. 53-10-67, P. Block 401).
(7)Remove crane.
(8)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(9)Remove safety clips and tags and close circuit breaker 4RE1 and 4RE2.
(10)Remove access platform.

R **ON A/C 006-101,

(4)Seal gaps between panels with sealant (Mat. No. 09-019).

E. Close-Up
(1)Install screwed plastic plugs flush with contour.
(2)Install self-adhesive aluminum discs (Mat. No. 05-052) over hoisting points (Ref. 11-20-00, P. Block 1).
(3)Install erosion protection tape on the leading edge panels (Ref. 55-30-00, P. Block 801).
NOTE : This step is only applicable where erosion protection tape is specified.
(4)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(5)Install dorsal fin (Ref. 53-10-67, P. Block 401).
(6)Remove crane.
(7)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(8)Remove safety clips and tags and close circuit breaker 4RE1 and 4RE2.
(9)Remove access platform.

VERTICAL STABILIZER TRAILING EDGE - DESCRIPTION AND OPERATION

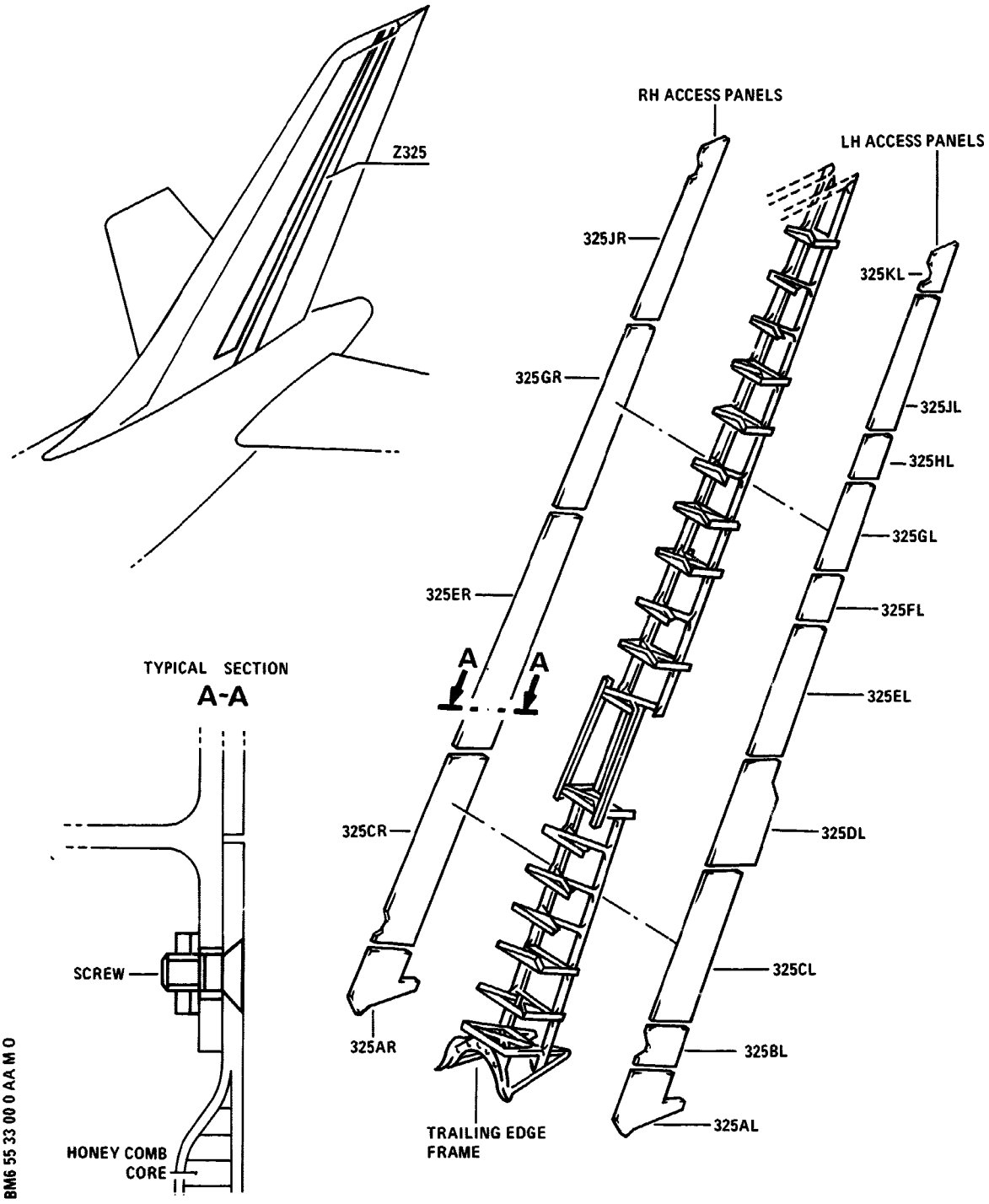
1. General

A. The trailing edge of the vertical stabilizer comprises a framework, riveted to the rear spar, and removable access panels.

2. Description (Ref. Fig. 001)

A. Trailing Edge Frame
(1) The trailing edge frame is a riveted framework of aluminum alloy angle sections, gusset plates and butt-straps.

B. Access Panels
(1) The trailing edge access panels are made from honeycomb core bonded between laminations of resin-fiber composites and are attached by screws and anchor nuts to the trailing edge frame. Lanyards allow the access panels to hang from the trailing edge frame when removed.
(2) Panel 325DL is attached to the trailing edge frame by a hinge, and via a support strut and bracket to hinge arms no. 2 and 3.



Trailing Edge Frame and Access Panels
Figure 001

VERTICAL STABILIZER TRAILING EDGE - DESCRIPTION AND OPERATION

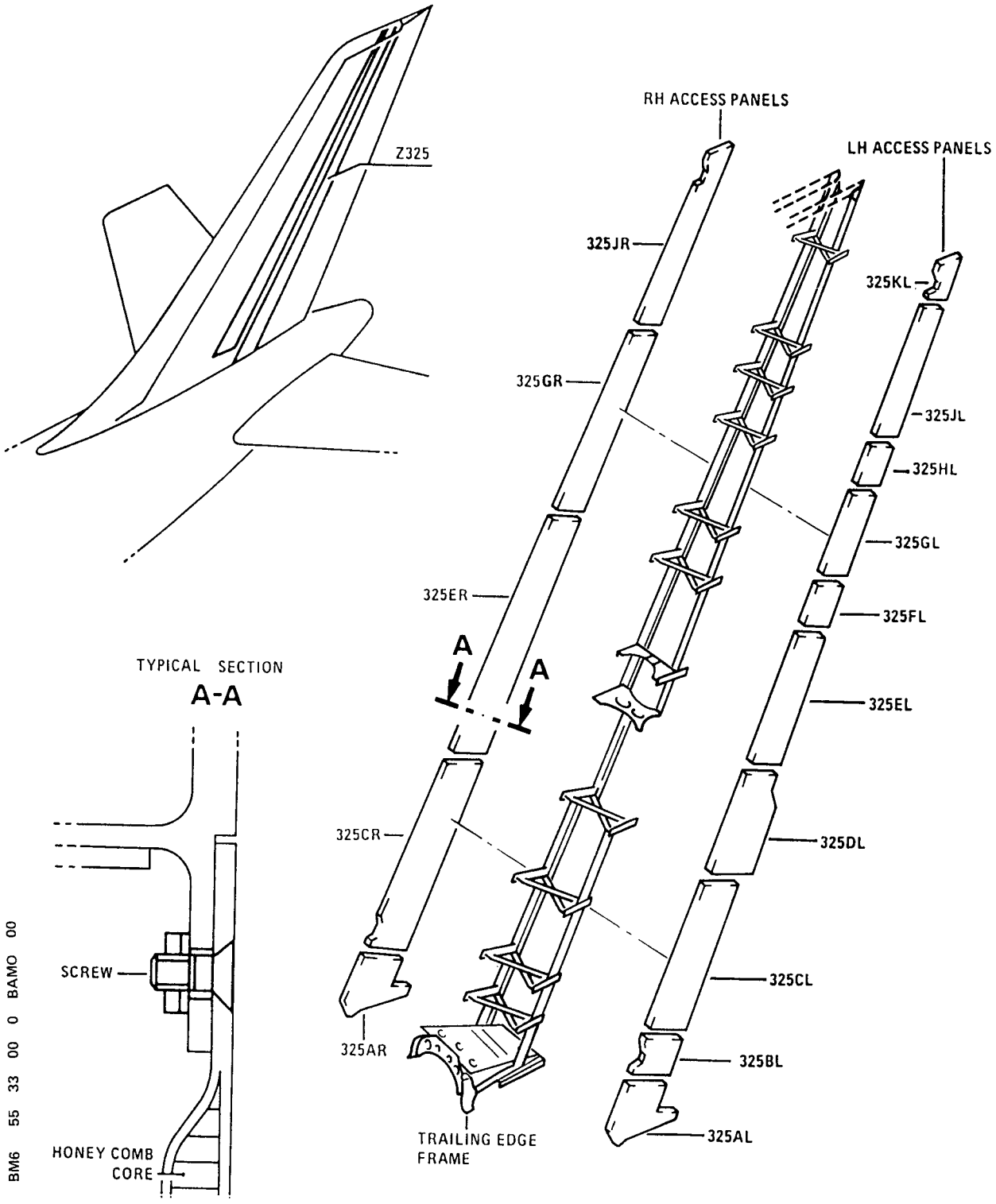
1. General

A. The trailing edge of the vertical stabilizer comprises a framework, riveted to the rear spar, and removable access panels.

2. Description (Ref. Fig. 001)

A. Trailing Edge Frame
(1) The trailing edge frame is a riveted framework of aluminum alloy angle sections, gusset plates and butt-straps.

B. Access Panels
(1) The trailing edge access panels are made from honeycomb core bonded between laminations of resin-fiber composites and are attached by screws and anchor nuts to the trailing edge frame. Lanyards allow the access panels 325BL, 325FL, 325HL and 325KL to hang from the trailing edge frame when removed.
(2) Panel 325DL is attached to the trailing edge frame by a hinge, and via a support strut and bracket to hinge arms no. 2 and 3.



Trailing Edge Frame and Access Panels
Figure 001

TRAILING EDGE ACCESS PANELS - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reasons for the Job

A. Access to rudder hinge arms

B. Inspection of stabilizer structure

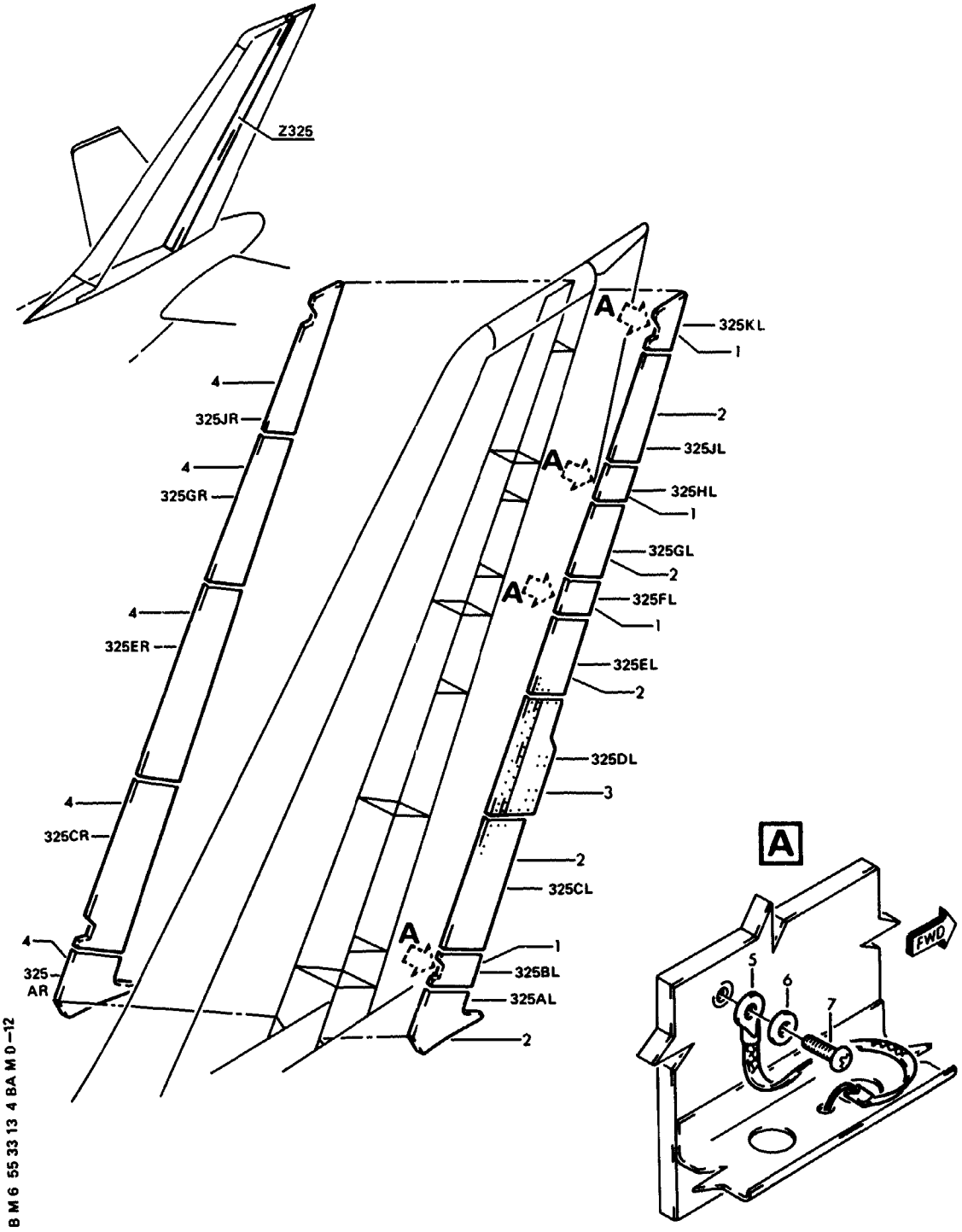
2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 7.5 to 15 m (25 to 49 ft.)
B. Material No. 05-013	Special Materials (Ref. 20-31-00)
C. Material No. 09-013	Sealants (Ref. 20-31-00)
D. Material No. 09-019	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures

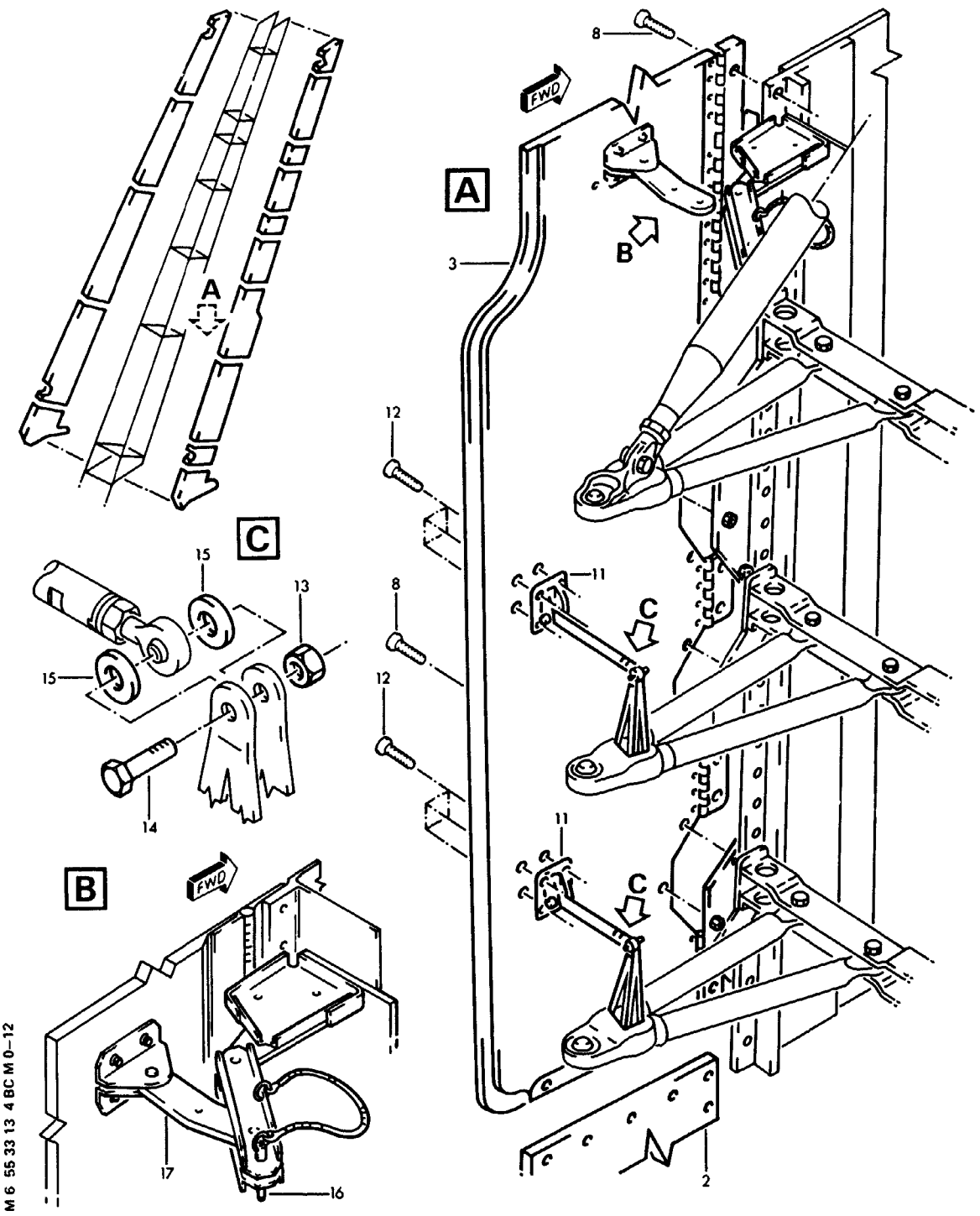
3. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.

B. Removal (Ref. Fig. 401, 402)
(1)Remove access panel 325DL.
NOTE : The panel can be opened and secured by inserting pip pin (16) through link (17), if access for servicing is required.
(a)Remove screws (12) from brackets (11).
(b)Remove screws (8) and panel (3).
(c)Remove nuts (13), bolts (14), washers (15) and support strut (10) from bracket (9).
(2)Remove access panels 325BL, 325FL, 325HL and 325KL.
NOTE : The panels can remain suspended by their lanyards if access for servicing is required.
(a)Remove screws (7, 8), washers (6), and panels (1).
(3)Remove access panels 325AL, 325CL, 325EL, 325GL and 325JL.
(a)Remove screws (8) and panels (2).
(4)Remove access panels 325AR, 325CR, 325ER, 325GR and 325JR.
(a)Remove screws (8) and panels (4).



Trailing Edge Access Panels - 1
Figure 401

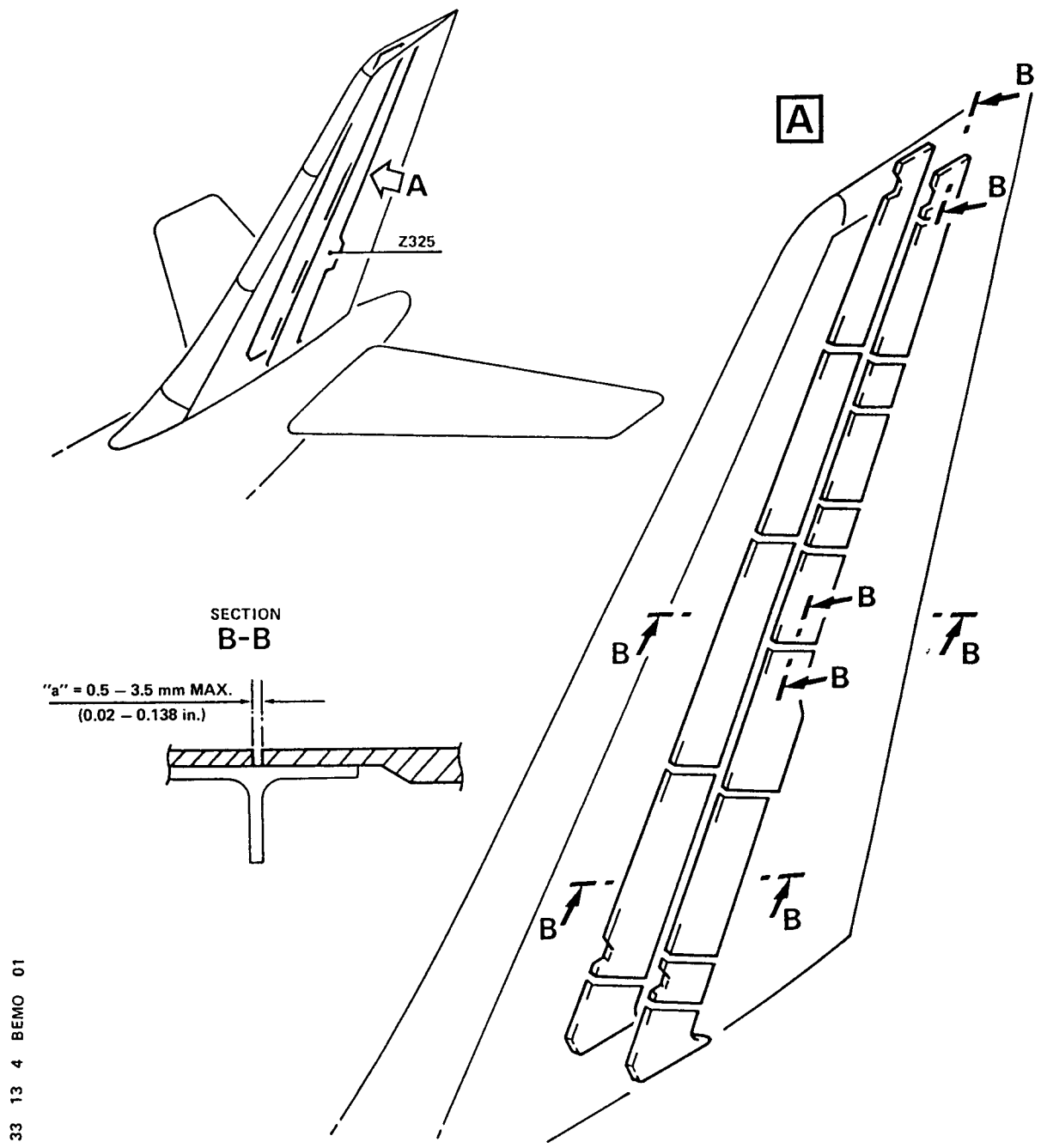


Trailing Edge Access Panels - 2
Figure 402

C. Preparation for Installation
(1)Inspect sealant (Mat. No. 09-013) on contact surfaces of spar box for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to contact surfaces of panels.

D. Installation (Ref. Fig. 401, 402)
(1)Install access panels 325AL, 325CL, 325EL, 325GL and 325JL.
(a)Position access panels (2) and attach with screws (8).
(2)Install access panels 325BL, 325FL, 325HL and 325KL.
(a)Position access panels (1) and attach lanyards (5) to panels (1) with screws (7) and washers (6).
(b)Attach access panels (1) with screws (8).
(3)Install access panel 325DL.
(a)Position support struts (10) on supports (9) and install bolts (14), washers (15) and nuts (13).
(b)Position access panel (3) and insert bracket (17) into bracket (18).
(c)Attach brackets (11) to access panel (3) with screws (12).
(d)Attach access panel (3) with screws (8).
(4)Install access panels 325AR, 325CR, 325ER, 325GR and 325JR.
(a)Position access panels (4) and attach with screws (8).
NOTE : Gap 'a' should not exceed 3.5 mm (0.138 in.) (Ref. Fig. 403).
R (5)Fill gaps between panels with sealant (Mat. No. 09-019).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horinzontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.



BM6 55 33 13 4 BEMO 01

Gaps between Panels
Figure 403

TRAILING EDGE ACCESS PANELS - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reasons for the Job

A. Access to rudder hinge arms

B. Inspection of stabilizer structure

2. Equipment and Materials

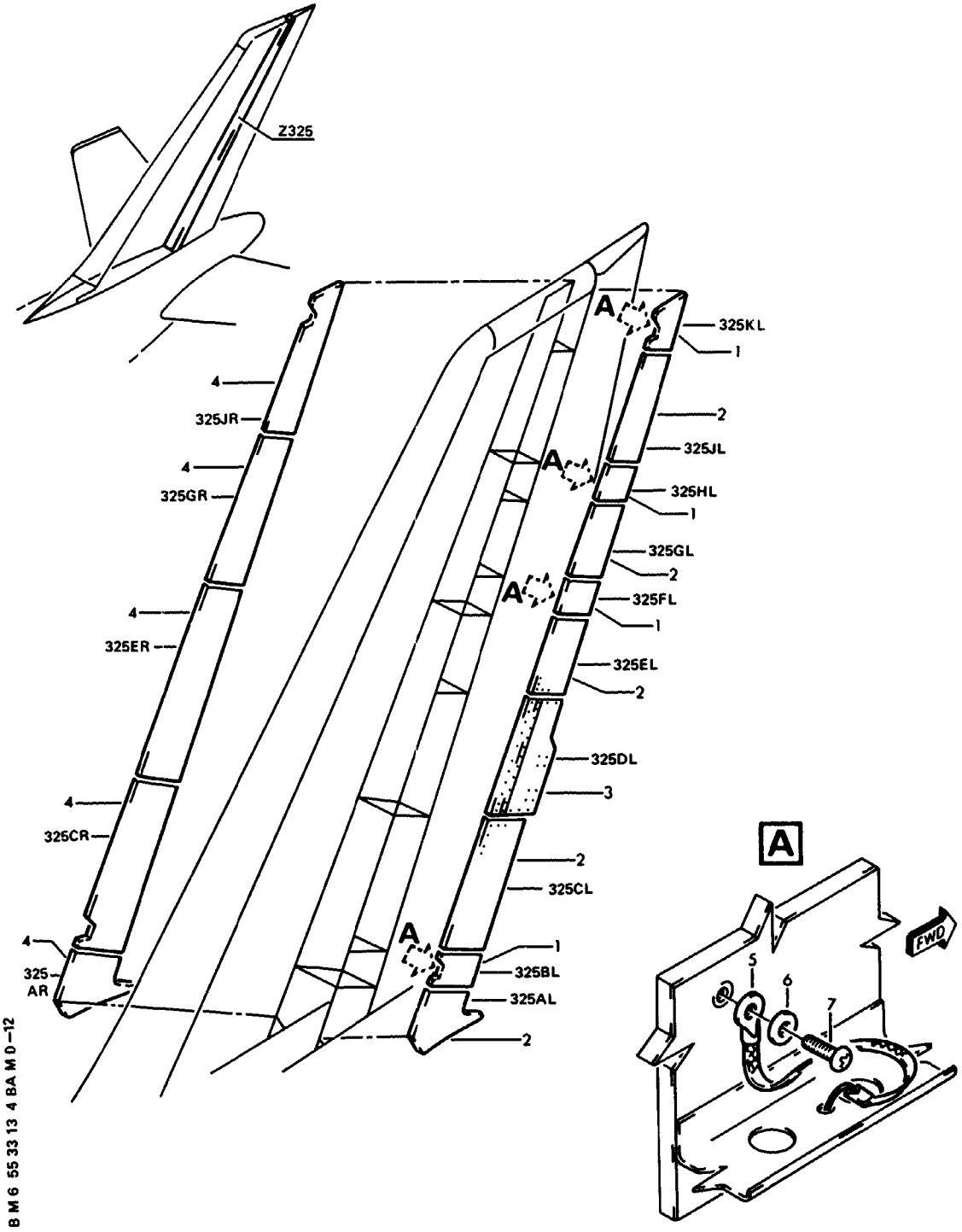
ITEM	DESIGNATION
A.	Access Platform, 7.5 to 15 m (25 to 49 ft.)
B. Material No. 05-013	Special Materials (Ref. 20-31-00)
C. Material No. 09-013	Sealants (Ref. 20-31-00)
D. Material No. 09-019	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures

3. Procedure

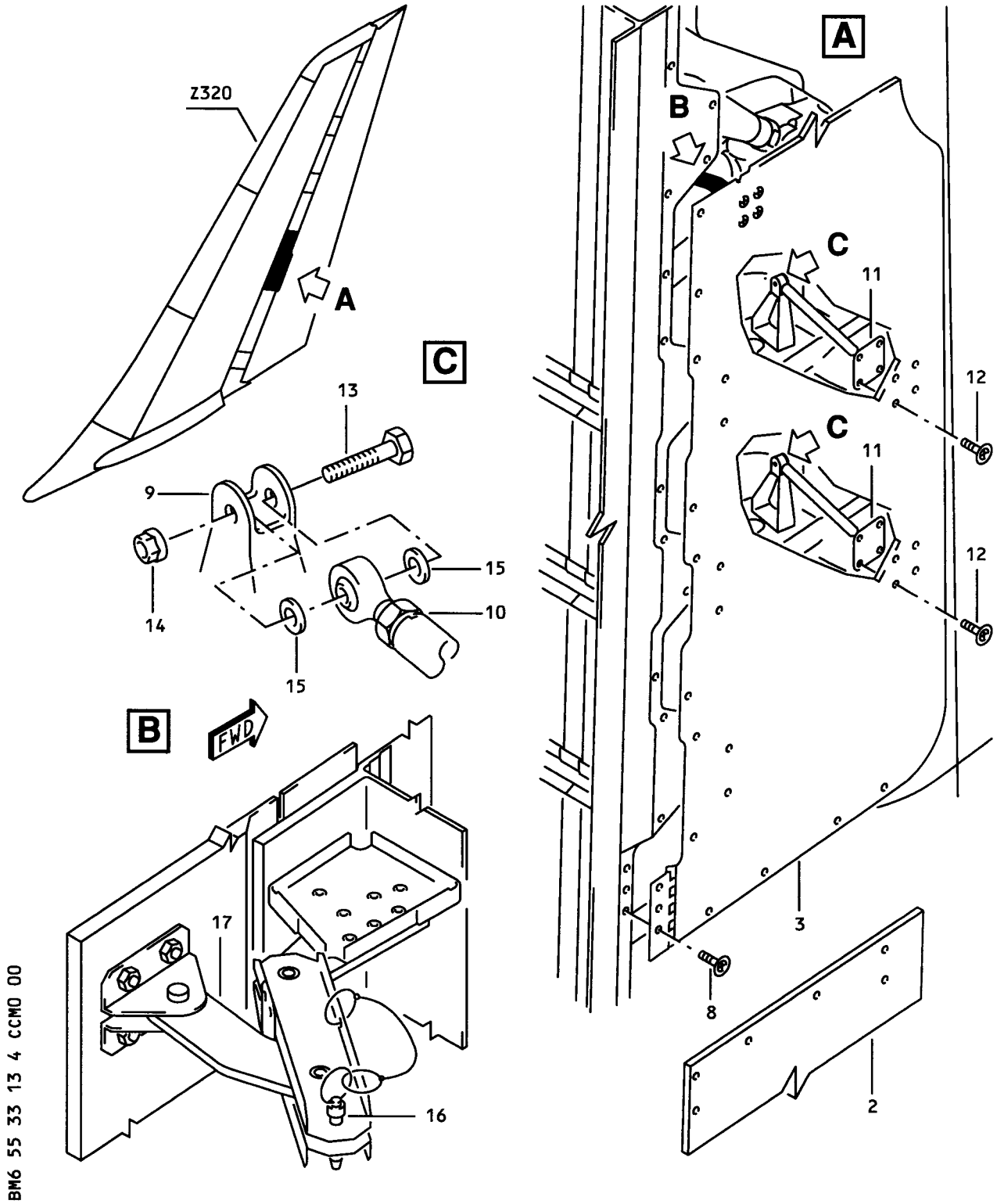
A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.

B. Removal (Ref. Fig. 401, 402)
(1)Remove access panel 325DL.
NOTE : The panel can be opened and secured by inserting pip pin (16) through link (17), if access for servicing is required.
(a)Remove screws (12) from brackets (11).
(b)Remove screws (8) and panel (3).
(c)Remove nuts (13), bolts (14), washers (15) and support strut (10) from bracket (9).
(2)Remove access panels 325BL, 325FL, 325HL and 325KL.
NOTE : The panels can remain suspended by their lanyards if access for servicing is required.
(a)Remove screws (7, 8), washers (6), and panels (1).
(3)Remove access panels 325AL, 325CL, 325EL, 325GL and 325JL.
(a)Remove screws (8) and panels (2).
(4)Remove access panels 325AR, 325CR, 325ER, 325GR and 325JR.
(a)Remove screws (8) and panels (4).

C. Preparation for Installation
(1)Inspect sealant (Mat. No. 09-013) on contact surfaces of spar box for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).



Trailing Edge Access Panels - 1
Figure 401

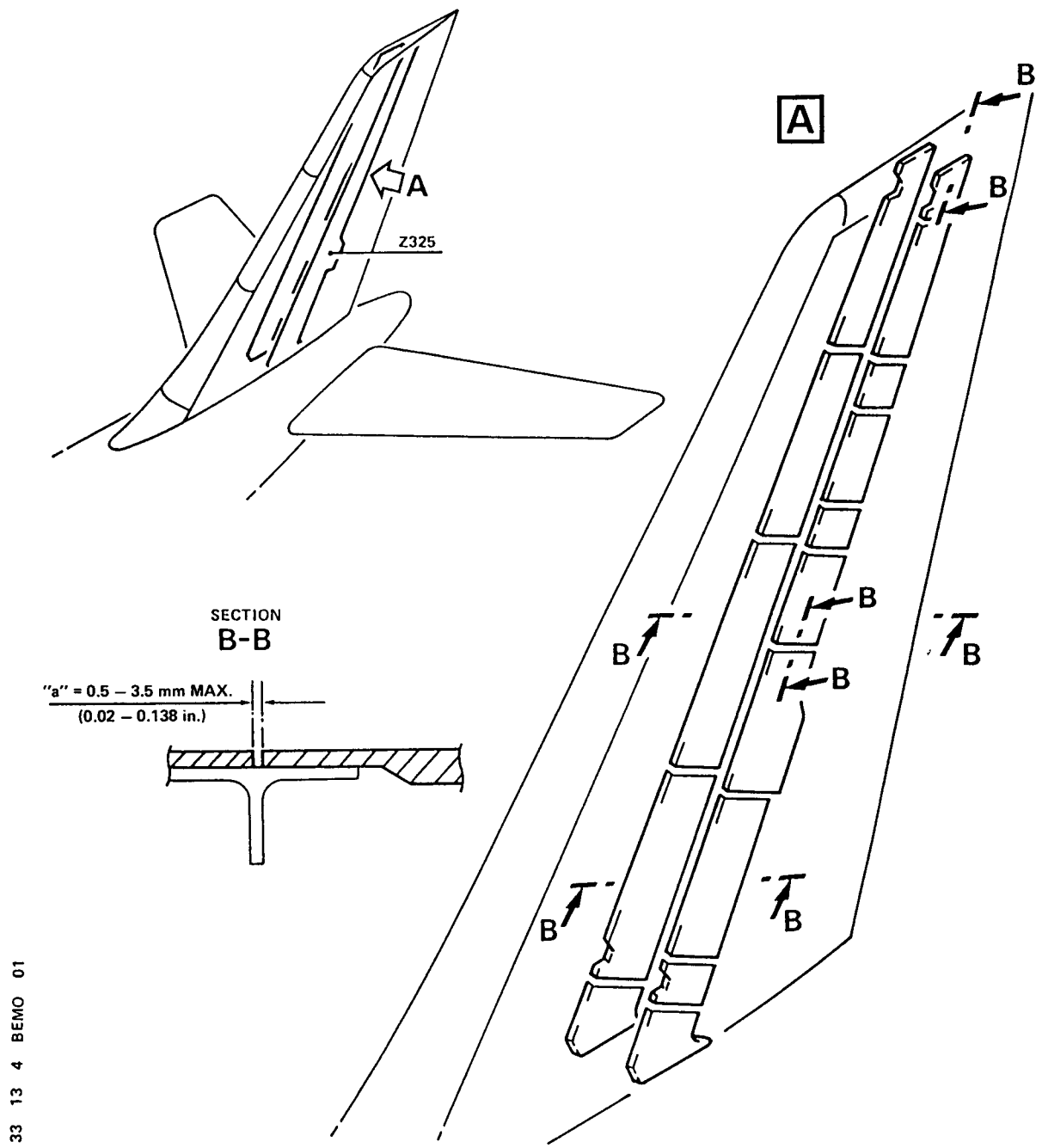


Trailing Edge Access Panels - 2
Figure 402

(2)Apply separator agent (Mat. No. 05-013) to contact surfaces of panels.

D. Installation (Ref. Fig. 401, 402)
(1)Install access panels 325AL, 325CL, 325EL, 325GL and 325JL.
(a)Position access panels (2) and attach with screws (8).
(2)Install access panels 325BL, 325FL, 325HL and 325KL.
(a)Position access panels (1) and attach lanyards (5) to panels (1) with screws (7) and washers (6).
(b)Attach access panels (1) with screws (8).
(3)Install access panel 325DL.
(a)Position support struts (10) on supports (9) and install bolts (14), washers (15) and nuts (13).
(b)Position access panel (3) and insert bracket (17) into bracket (18).
(c)Attach brackets (11) to access panel (3) with screws (12).
(d)Attach access panel (3) with screws (8).
(4)Install access panels 325AR, 325CR, 325ER, 325GR and 325JR.
(a)Position access panels (4) and attach with screws (8).
NOTE : Gap 'a' should not exceed 3.5 mm (0.138 in.) (Ref. Fig. 403).
(5)Fill gaps between panels with sealant (Mat. No. 09-019).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horinzontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.



BM6 55 33 13 4 BEMO 01

Gaps between Panels
Figure 403

VERTICAL STABILIZER TIP - DESCRIPTION AND OPERATION

1. General

A. The upper fairing of the vertical stabilizer comprises a tip, an end piece and a joint strap, attached to the end rib of the vertical stabilizer spar box.

2. Description (Ref. Fig. 001)

R **ON A/C 001-005, 102-200,

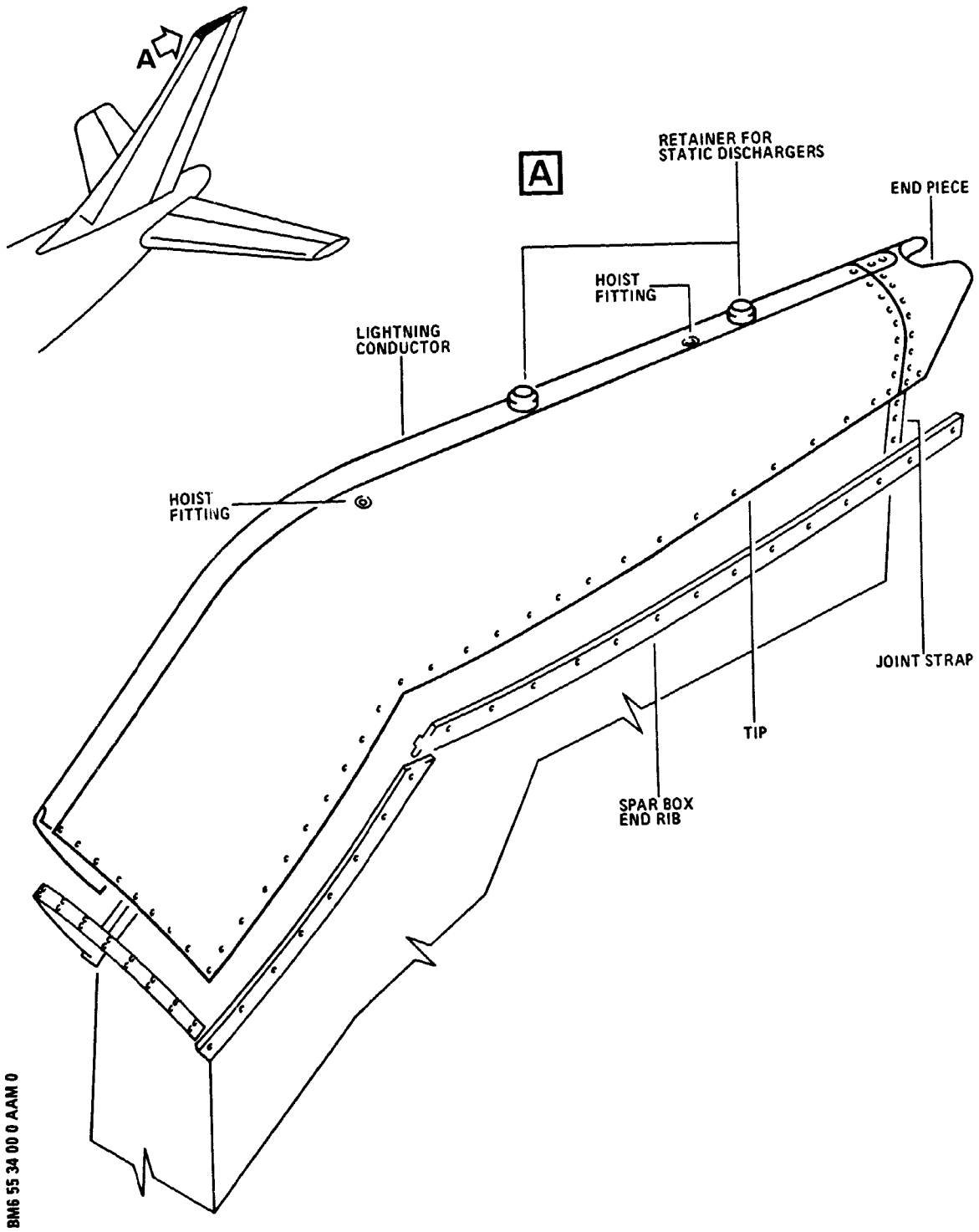
A. Tip
(1) The tip is constructed from resin-fiber composite over a honeycomb core. The screw holes are countersunk, and the inner surface of the tip is lined with a protective foil.
(2) An aluminum alloy, lightning conductor is bonded along the top of the tip. Two retainers for static dischargers are attached to the lightning conductor.
(3) Hoisting points are provided in the tip. Each hoisting point consists of a threaded sleeve bonded into the tip, and a hoisting lug. The hoisting lug is normally flush with the tip contour, but when required for use, is removed and installed in reverse so that the eye-end protrudes beyond the tip contour.

B. End Piece
(1) The end piece is made from resin-fiber composite laminates and the screw holes are reinforced with bonded-in cupwashers. An aluminum alloy strip is bonded to the top of the end piece for attachment of the lightning conductor.

R **ON A/C 006-101,

A. Tip
(1) The tip is constructed from resin-fiber composite over a honeycomb core. The screw holes are countersunk, and the inner surface of the tip is lined with a protective foil.
(2) An aluminum alloy, lightning conductor is bonded along the top of the tip. Two retainers for static dischargers are attached to the lightning conductor.
(3) Hoisting points are provided in the tip. Each hoisting point consists of a threaded sleeve bonded into the tip, and a screwed plastic plug which is normally flush with the tip contour.
The screwed plastic plug must be removed during removal/installation procedure of tip.

B. End Piece
(1) The end piece is made from resin-fiber composite laminates and the screw holes are reinforced with bonded-in cupwashers. An aluminum alloy strip



Vertical Stabilizer Tip
Figure 001

is bonded to the top of the end piece for attachment of the lightning conductor.

VERTICAL STABILIZER TIP - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reasons for the Job

A. Inspection of stabilizer structure

B. Access to VOR antenna

R **ON A/C 001-005, 102-200,

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 16 m (52 ft.)
B. 98A55307591000	Sling - Vertical Stabilizer Tip
C.	Crane, minimum height 19 m (62 ft.) to lift 20 kg (44 lb.)
D.	Suitable Support for Tip
E.	Torque Wrench, 0.5 m.daN (44 lbf.in.)
F. Material No. 05-002	Special Materials (Ref. 20-31-00)
G. Material No. 05-013	Special Materials (Ref. 20-31-00)
H. Material No. 05-052	Special Materials (Ref. 20-31-00)
J. Material No. 09-013	Sealants (Ref. 20-31-00)
K. Material No. 09-019	Sealants (Ref. 20-31-00)
L. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

- 11-20-00, P. Block 1	Exterior Placards and Markings
- 20-28-11, P. Block 1	Electrical Bonding
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures

3. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Position crane.

R **ON A/C 006-101,

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 16 m (52 ft.)
B. 98A55307591001	Sling - Vertical Stabilizer Tip
C.	Crane, minimum height 19 m (62 ft.) to lift 20 kg (44 lb.)
D.	Suitable Support for Tip
E.	Torque Wrench, 0.5 m.daN (44 lbf.in.)
F. Material No. 05-002	Special Materials (Ref. 20-31-00)
G. Material No. 05-013	Special Materials (Ref. 20-31-00)
H. Material No. 05-052	Special Materials (Ref. 20-31-00)
J. Material No. 09-013	Sealants (Ref. 20-31-00)
K. Material No. 09-019	Sealants (Ref. 20-31-00)
L. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 11-20-00, P. Block 1	Exterior Placards and Markings
- 20-28-11, P. Block 1	Electrical Bonding
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures

3. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Position crane.

**ON A/C ALL

B. Removal (Ref. Fig. 401)

R **ON A/C 001-005, 102-200,

(1)Remove and discard self-adhesive discs covering hoisting lugs (9).
(2)Remove hoisting lugs (9) and install in reverse position in vertical stabilizer tip (7).
(3)Attach sling P/N 98A55307591000 to hoisting lugs (9).
(4)Remove screws (2) and tip assembly and lower onto suitable support.
(5)Remove sling.
(6)Remove screws (1), end-piece (3) and butt-strap (4) from tip (7).

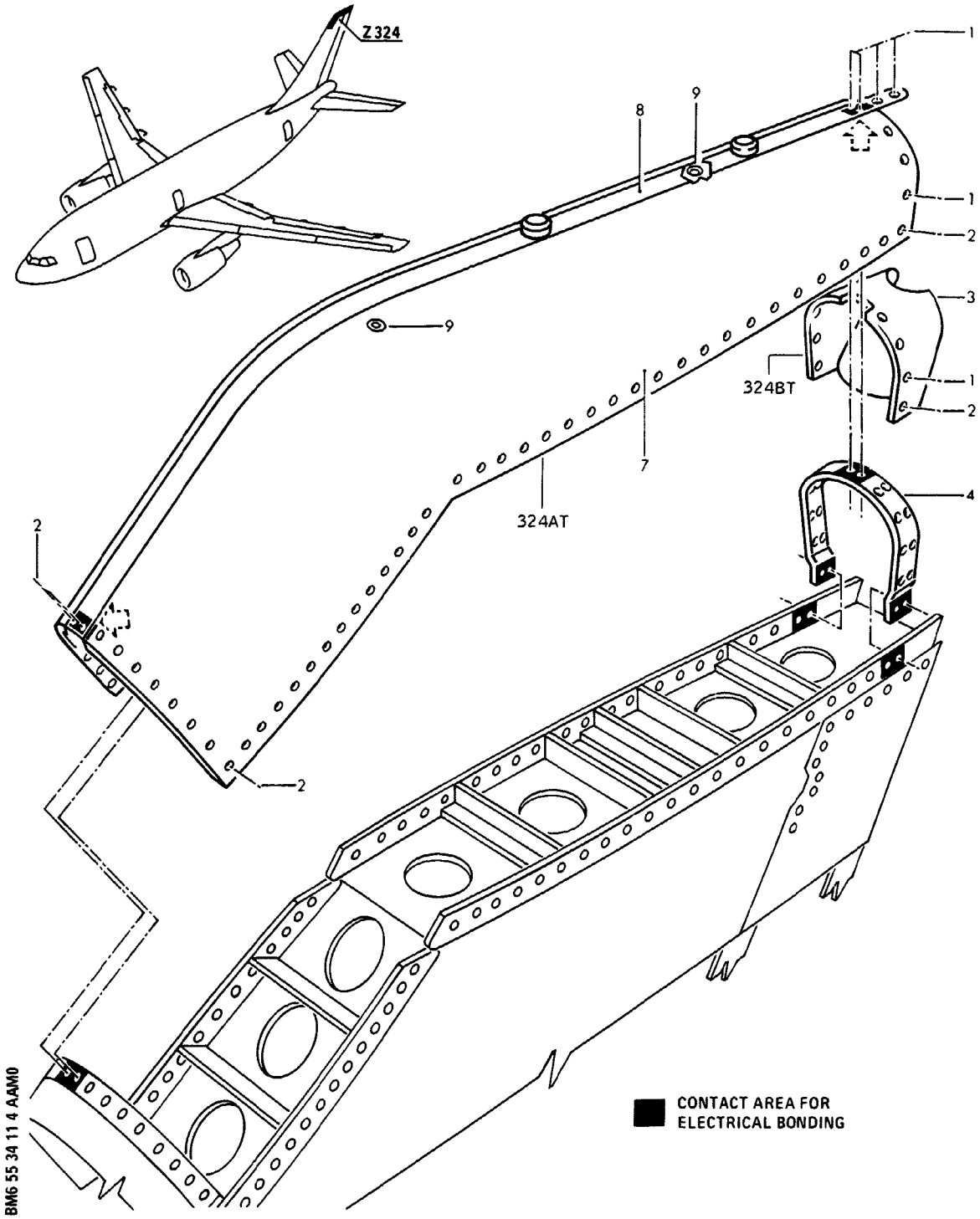
C. Preparation for Installation
(1)Check sealant (Mat. No. 09-013) on mating surfaces of vertical stabilizer spar box, leading edge rib, and butt-straps for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of tip (7) and end-piece (3).

D. Installation
NOTE: The shaded areas serve as contacts for electrical bonding. Refer to 20-28-11, P. Block 1 during installation.
(1)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (1, 2)
(2)Install butt-strap (4) and end-piece (3) on tip (7) with screws (1).
(3)Attach sling P/N 98A55307591000 to hoisting lugs (9).
(4)Position tip assembly on vertical stabilizer spar box and install screws (2).
NOTE: Gap 'a' should not exceed 3.0 mm (0.118 in.) (Ref. Fig. 402).

R **ON A/C 006-101,

(1)Remove and discard self-adhesive discs covering hoisting points (9).
(2)Remove screwed plastic plugs from vertical stabilizer tip (7).
(3)Attach sling P/N 98A55307591001 to hoisting points (9).
(4)Remove screws (2) and tip assembly and lower onto suitable support.
(5)Remove sling.
(6)Remove screws (1), end-piece (3) and butt-strap (4) from tip (7).

C. Preparation for Installation



Tip
Figure 401

(1)Check sealant (Mat. No. 09-013) on mating surfaces of vertical stabilizer spar box, leading edge rib, and butt-straps for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of tip (7) and end-piece (3).

D. Installation

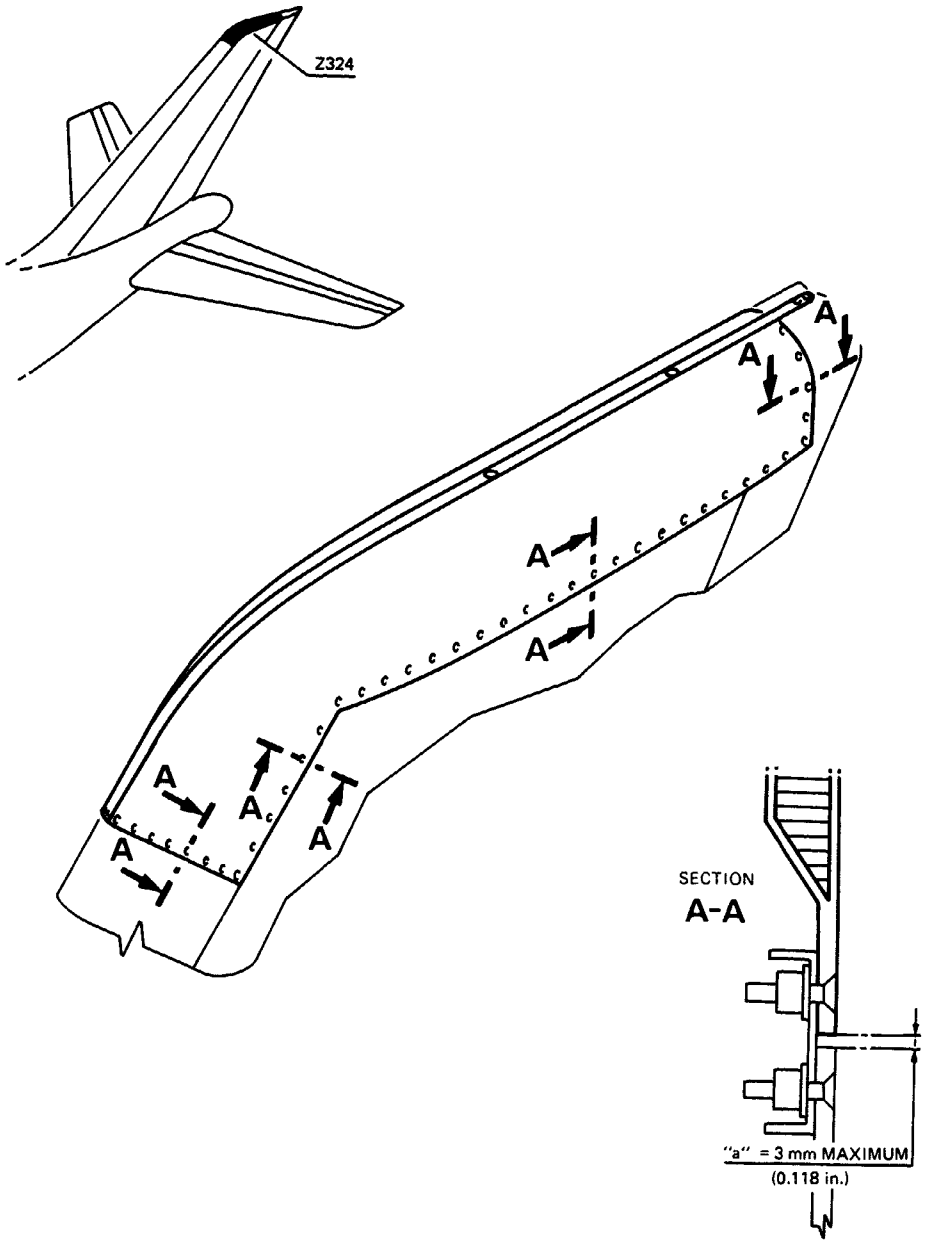
NOTE: The shaded areas serve as contacts for electrical bonding. Refer to 20-28-11, P. Block 1 during installation.

(1)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (1, 2).
(2)Install butt-strap (4) and end-piece (3) on tip (7) with screws (1).
(3)Attach sling P/N 98A55307591001 to hoisting points (9).
(4)Position tip assembly on vertical stabilizer spar box and install screws (2).

NOTE: Gap 'a' should not exceed 3.0 mm (0.118 in.) (Ref. Fig. 402).

R **ON A/C 001-005, 102-200,

(5)TORQUE screws (1, 2) to between 0.4 and 0.5 m.daN (35 and 44 lbf.in.).
(6)Remove sling and crane.
(7)Remove hoisting lugs (9) and degrease with cleaning agent (Mat. No. 11-004).
(8)Apply corrosion-preventive paste (Mat. No. 05-002) to hoisting lugs (9) and install in tip flush with skin.
(9)Install self-adhesive discs (Mat. No. 05-052) over hoisting lugs (9) (Ref. 11-20-00, P. Block 1).
(10)Seal vertical stabilizer tip joints with sealant (Mat. No. 09-019) (Ref. 51-76-10, P. Block 801).



B M 6 55 34 11 4 ACM0

Gaps at Joints
Figure 402

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.

R **ON A/C 006-101,

(5)TORQUE screws (1, 2) to between 0.4 and 0.5 m.daN (35 and 44 lbf.in.).
(6)Remove sling and crane.
(7)Install screwed plastic plugs in tip, flush with skin.
(8)Install self-adhesive discs (Mat. No. 05-052) over screwed plastic plugs (Ref. 11-20-00, P. Block 1).
(9)Seal vertical stabilizer tip joints with sealant (Mat. No. 09-019) (Ref. 51-76-10, P. Block 801).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.

VERTICAL STABILIZER ATTACH FITTINGS - DESCRIPTION AND OPERATION

1. General (Ref. Fig. 001)

A. The vertical stabilizer has the following attach fittings.
(1) Main attach fittings and transverse load fittings attach the vertical stabilizer to the aft fuselage.
(2) Hinge attach fittings attach the hinge arms and rudder servo controls to the rear spar. They are located as follows :
- Hinge No. 1 at RIB5 (STA221)
- Hinge No. 2 at RIB8 (STA380) (with rudder servo control)
- Hinge No. 3 at RIB9 (STA402) (with rudder servo control)
- Hinge No. 4 at RIB10 (STA425) (with rudder servo control)
- Hinge No. 5 at RIB13 (STA576)
- Hinge No. 6 at RIB15 (STA690)
- Hinge No. 7 at RIB17 (STA833)

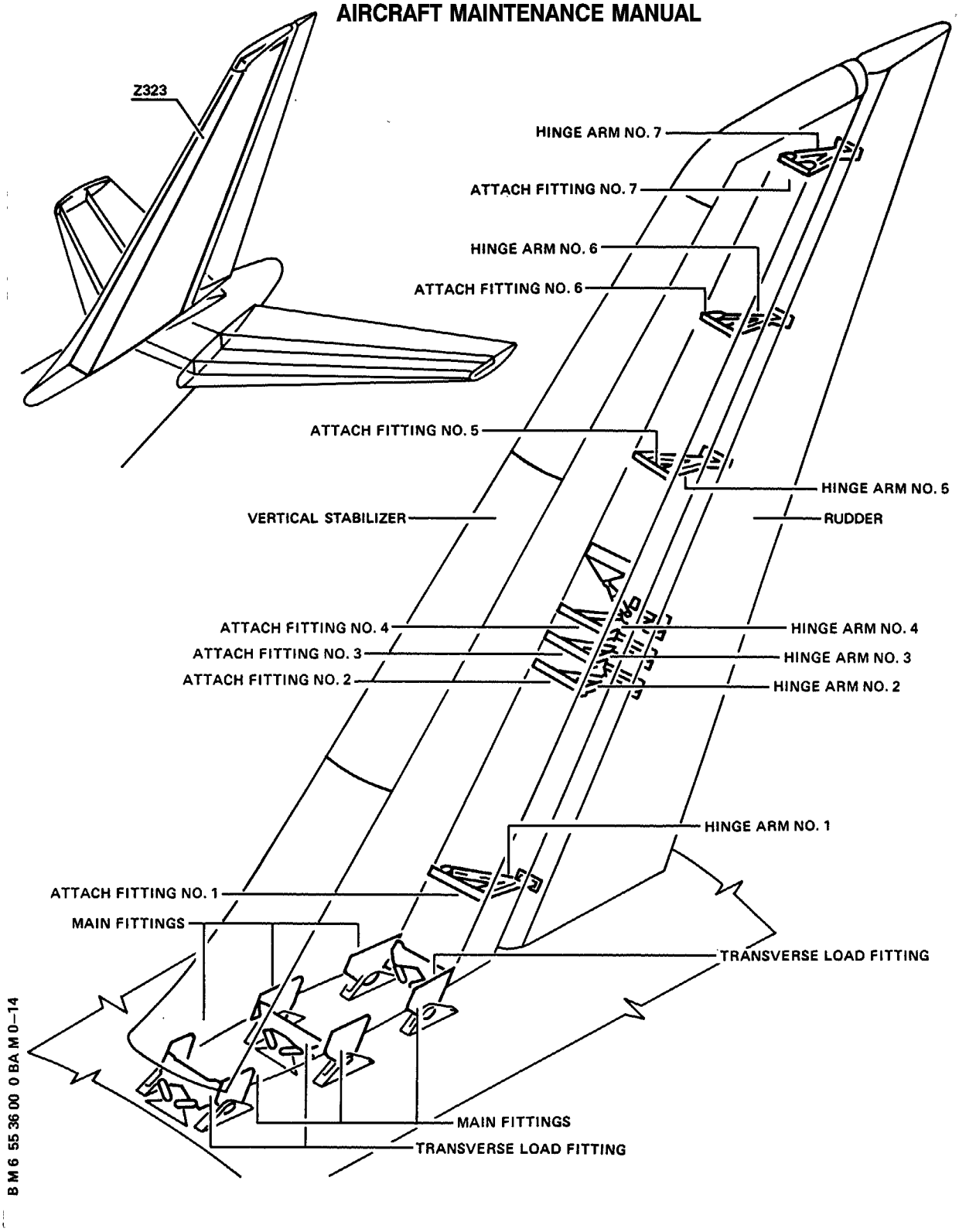
(3) An additional attach fitting, for a support strut between rear spar and hinge arm no. 4, is located at RIB11 (STA463) on the rear spar.

2. Description

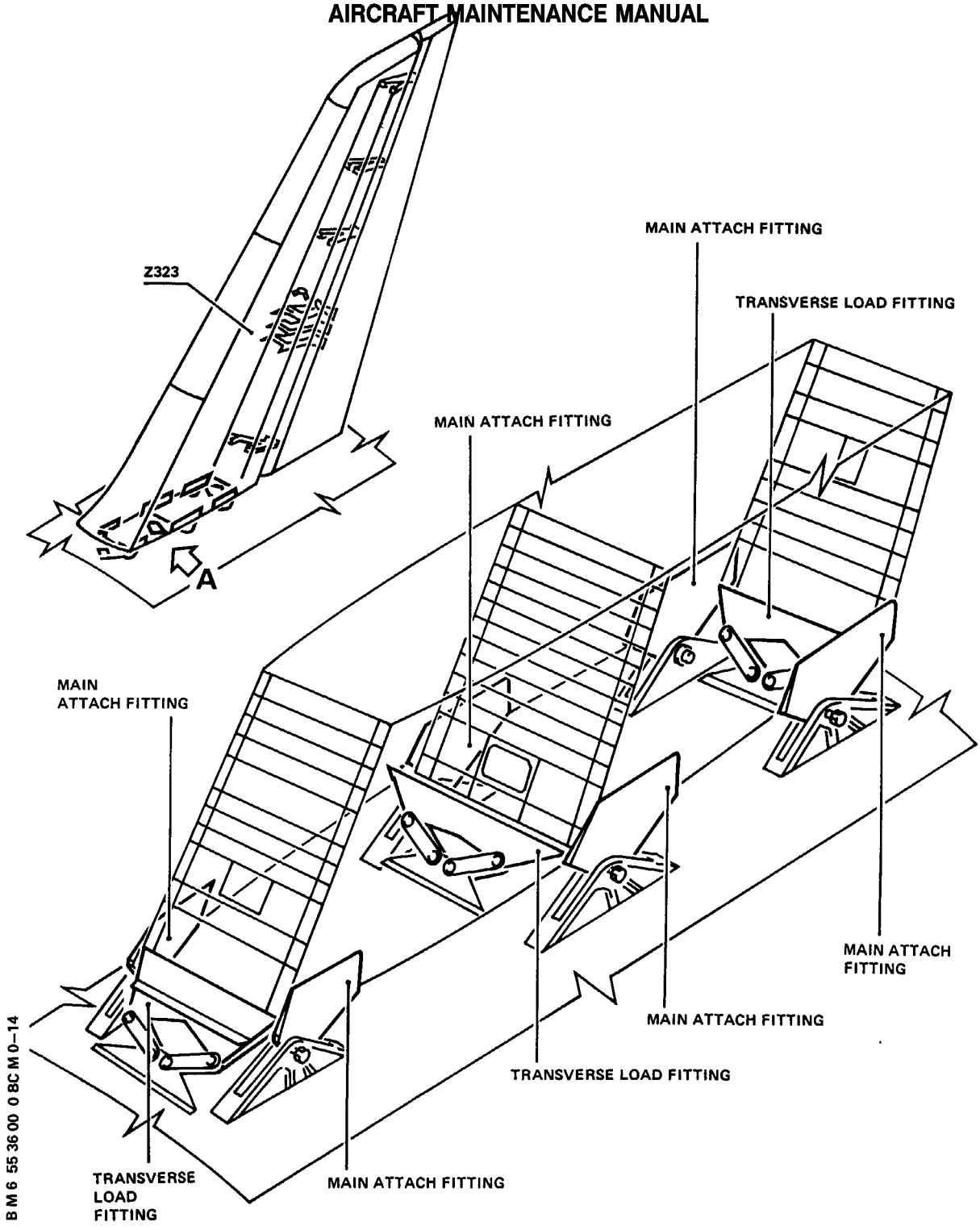
A. Main Attach and Transverse-Load Fittings (Ref. Fig. 002)
(1) The main attach fittings are located in pairs at the front, center and rear spar and are parts of the skin panels. The transverse load fittings are parts of the front, center and rear spar.
(2) The main attach fittings and transverse load fittings are made of carbon fiber reinforced plastic (CFRP).

B. Hinge Arms Attach Fittings (Ref. Fig. 003)
(1) The attach fittings are solid resin fiber composite components and are attached to the rear spar adjacent to the ribs.

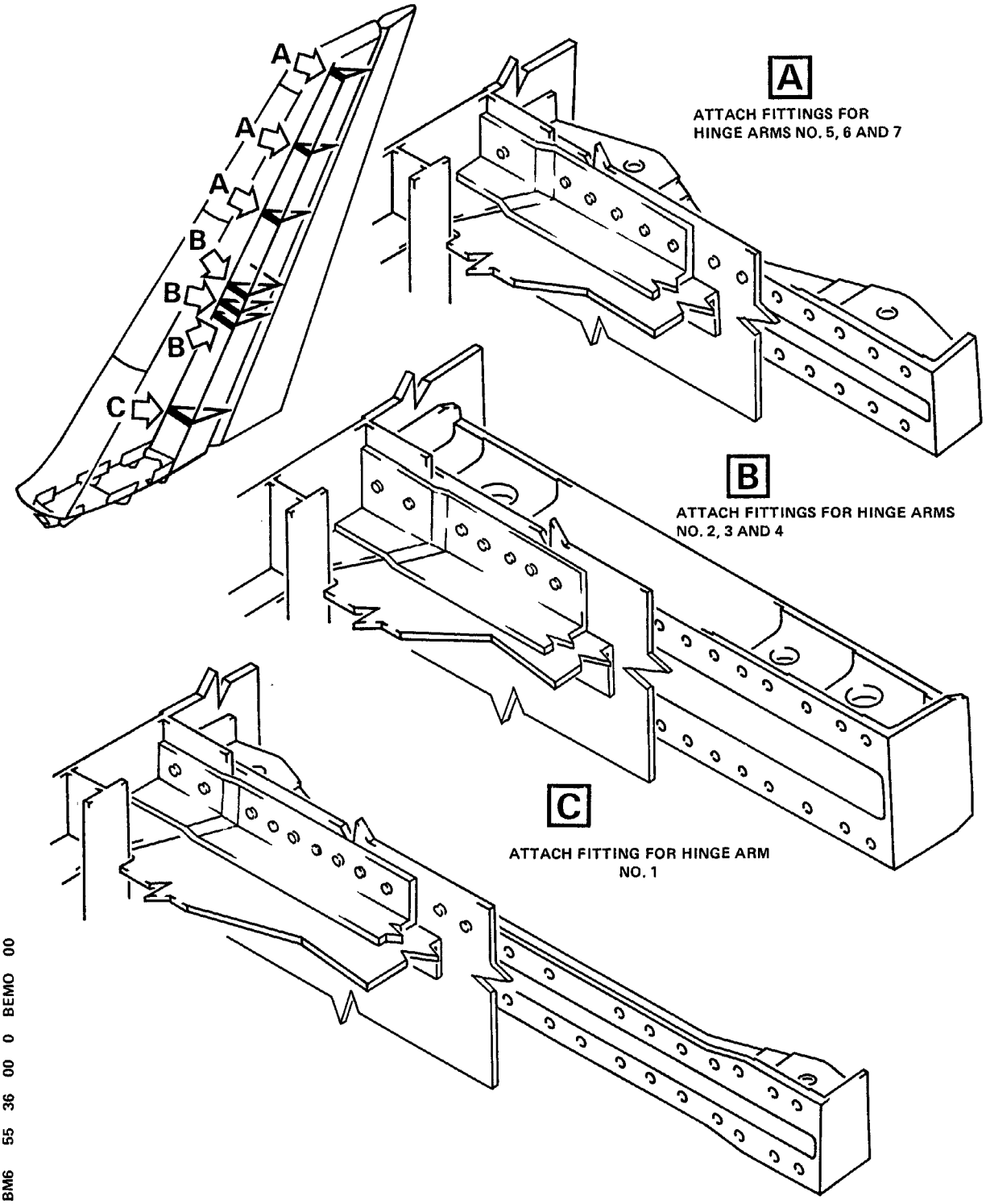
C. Hinge Arms (Ref. Fig. 004)
(1) Each hinge arm has three self-aligning bearings for attachment to the vertical stabilizer and for hingeing the rudder. Hinge arms 1, 5, 6, and 7 are of H-section and made from aluminum alloy. Hinge arms 2, 3 and 4 are made from tubular steel with steel bearing housings. An additional bracket and support strut is mounted on hinge arms 2 and 3 as additional attachments for trailing edge access panel 325DL.
(2) A support strut is installed between its attach fittings on the rear spar and an integral fitting at the apex of hinge arm 4. The support strut maintains the vertical alignment of the rudder.



Vertical Stabilizer Attach Fittings
Figure 001



Main Attach and Transverse-Load Fittings
Figure 002



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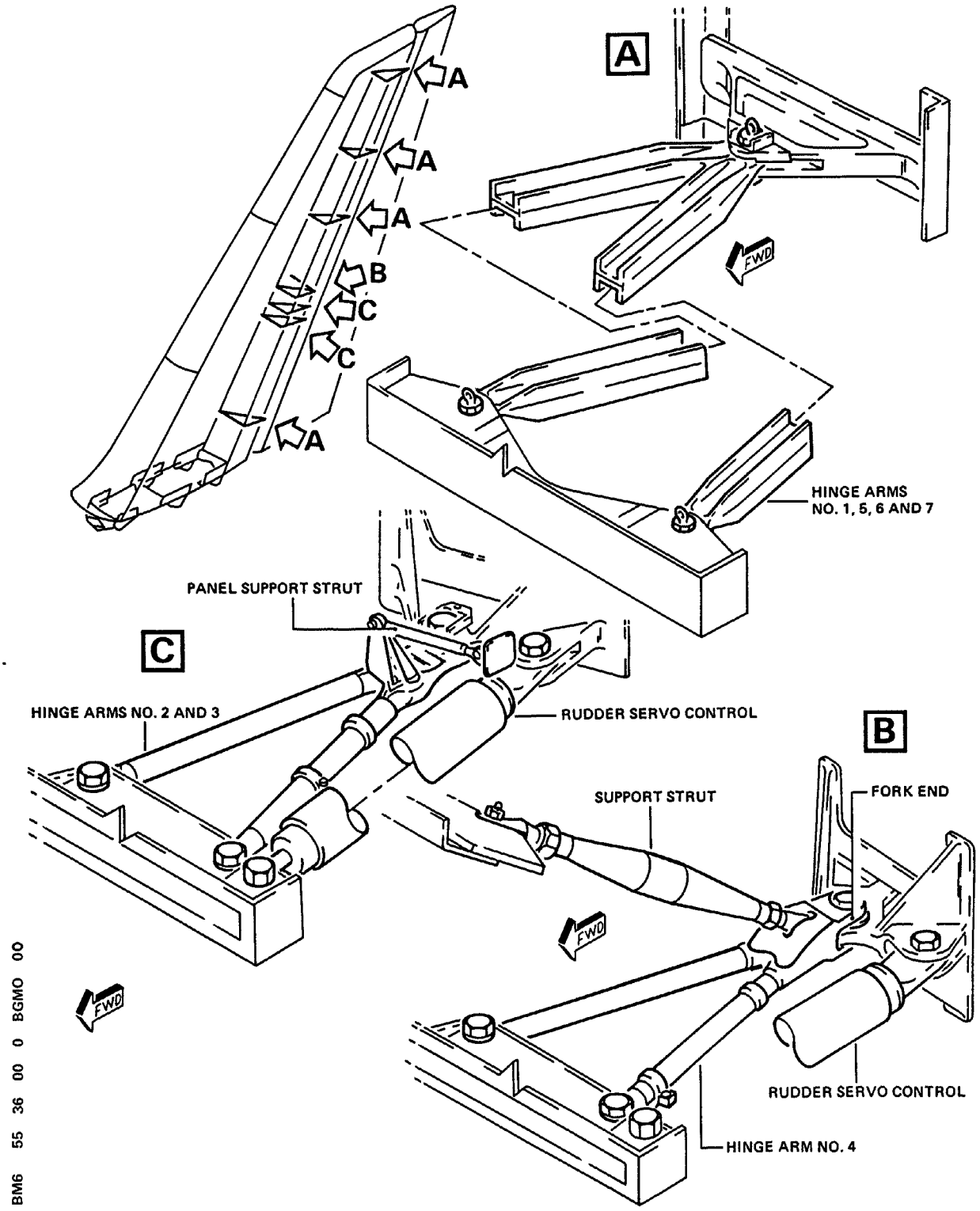
Hinge Arms Attach Fittings
Figure 003



Hinge Arms
Figure 004

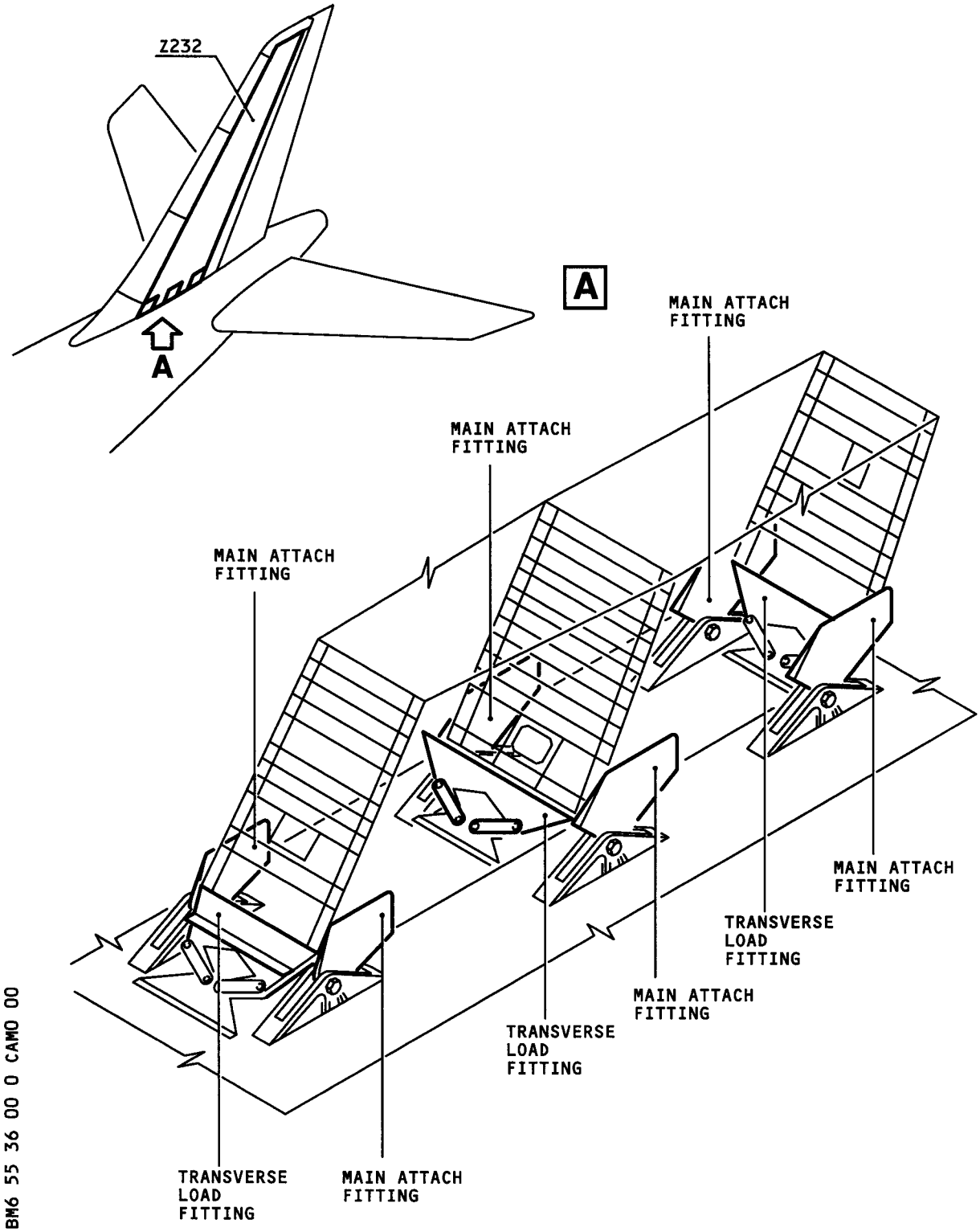
VERTICAL STABILIZER ATTACH FITTINGS - DESCRIPTION AND OPERATION

1. General (Ref. Fig. 001)

A. The vertical stabilizer attach fittings are:
(1) Main attach fittings and transverse load fittings attach the vertical stabilizer to the aft fuselage.

2. Description

A. Main Attach and Transverse-Load Fittings (Ref. Fig. 001)
(1) The main attach fittings are located in pairs at the front, center and rear spar and are parts of the skin panels. The transverse load fittings are parts of the front, center and rear spar.
(2) The main attach fittings and transverse load fittings are made of carbon fiber reinforced plastic (CFRP).



Main Attach and Transverse-Load Fittings
Figure 001

VERTICAL STABILIZER ATTACH FITTINGS - INSPECTION/CHECK

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION : PERCENTAGE (%) OF ALLOWABLE DAMAGE IS ALWAYS RELATED TO THE NOMINAL MATERIAL THICKNESS AS SPECIFIED IN SRM (STRUCTURAL REPAIR MANUAL).

NOTE : Should a defect be suspected during the following inspection/check, an approved nondestructive test must be carried out.
If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

1. Attach Fittings - Visual Inspection

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform, 5.5 to 14.5 m (18 to 48 ft.)
(2)98A55307516000	Ladder - Access, Vertical Stabilizer

Referenced Procedures

- 51-73-10, P. Block 801	Repair of Minor Damage
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 53-10-69, P. Block 401	Vertical Stabilizer Side Fairings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-30-00, P. Block 301	Vertical Stabilizer - Access Precautions
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-36-11, P. Block 801	Vertical Stabilizer Attach Fittings
- 55-36-43, P. Block 401	Rudder Hinge Arm No. 1
- 55-36-44, P. Block 401	Rudder Hinge Arms No. 2 and 3
- 55-36-45, P. Block 401	Rudder Hinge Arm No. 4
- 55-36-46, P. Block 401	Rudder Hinge Arms No. 5 and 6
- 55-36-47, P. Block 401	Rudder Hinge Arm No. 7
- 55-42-13, P. Block 401	Rudder Leading Edge Access Panels
- 55-46-13, P. Block 401	Rudder Hinge Bearing No. 4
	NTM - Nondestructive Testing Manual
	SRM - Structural Repair Manual

B. Procedure

(1)Job Set-Up

(a)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

(b)Position access platforms.

(c)Open equipment compartment access door 312AR.

(d)Open vertical stabilizer access door 311AZ.

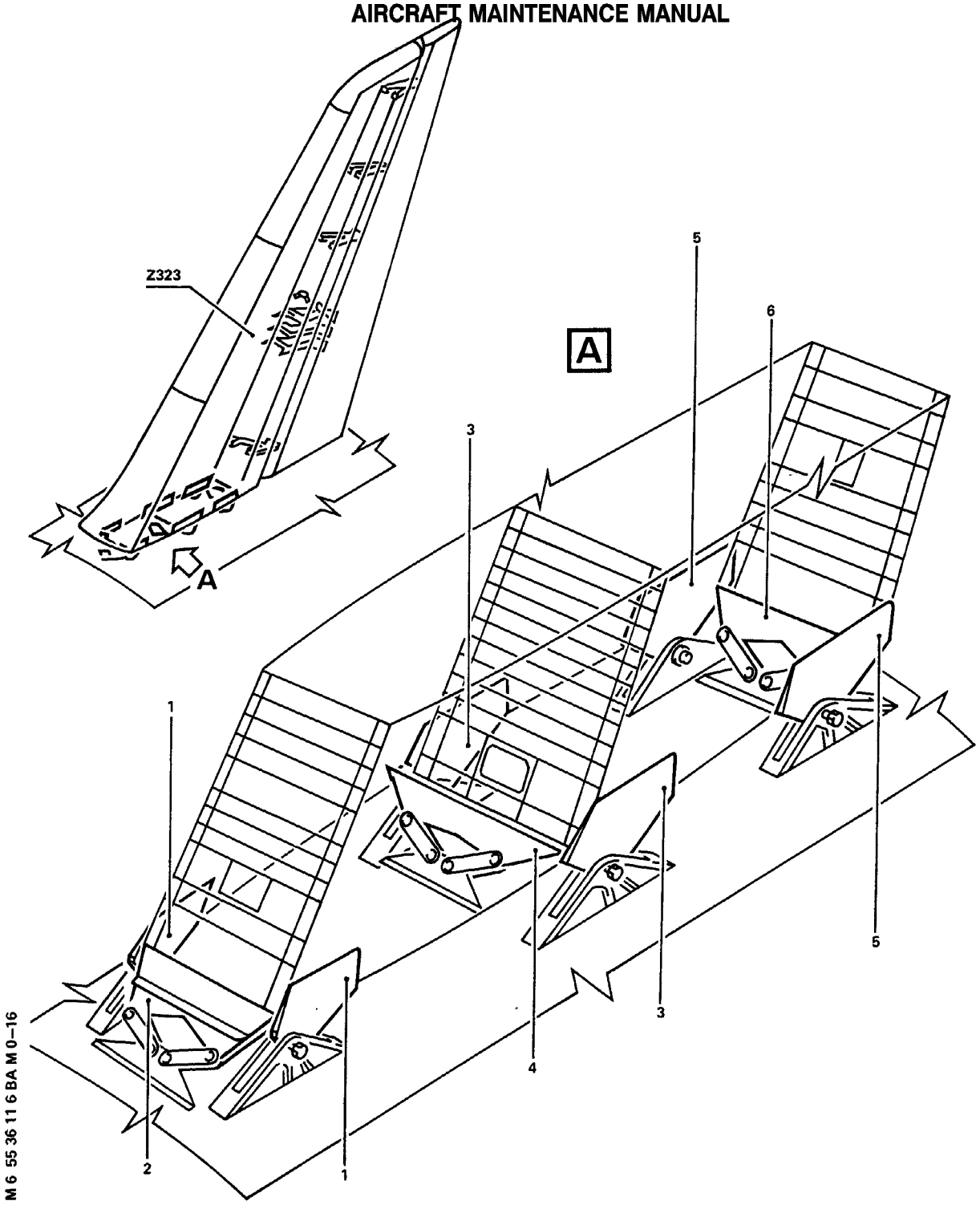
(e)Position access ladder P/N 98A55307516000 and open vertical stabilizer access door 311BZ.

(f)Open or remove vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).

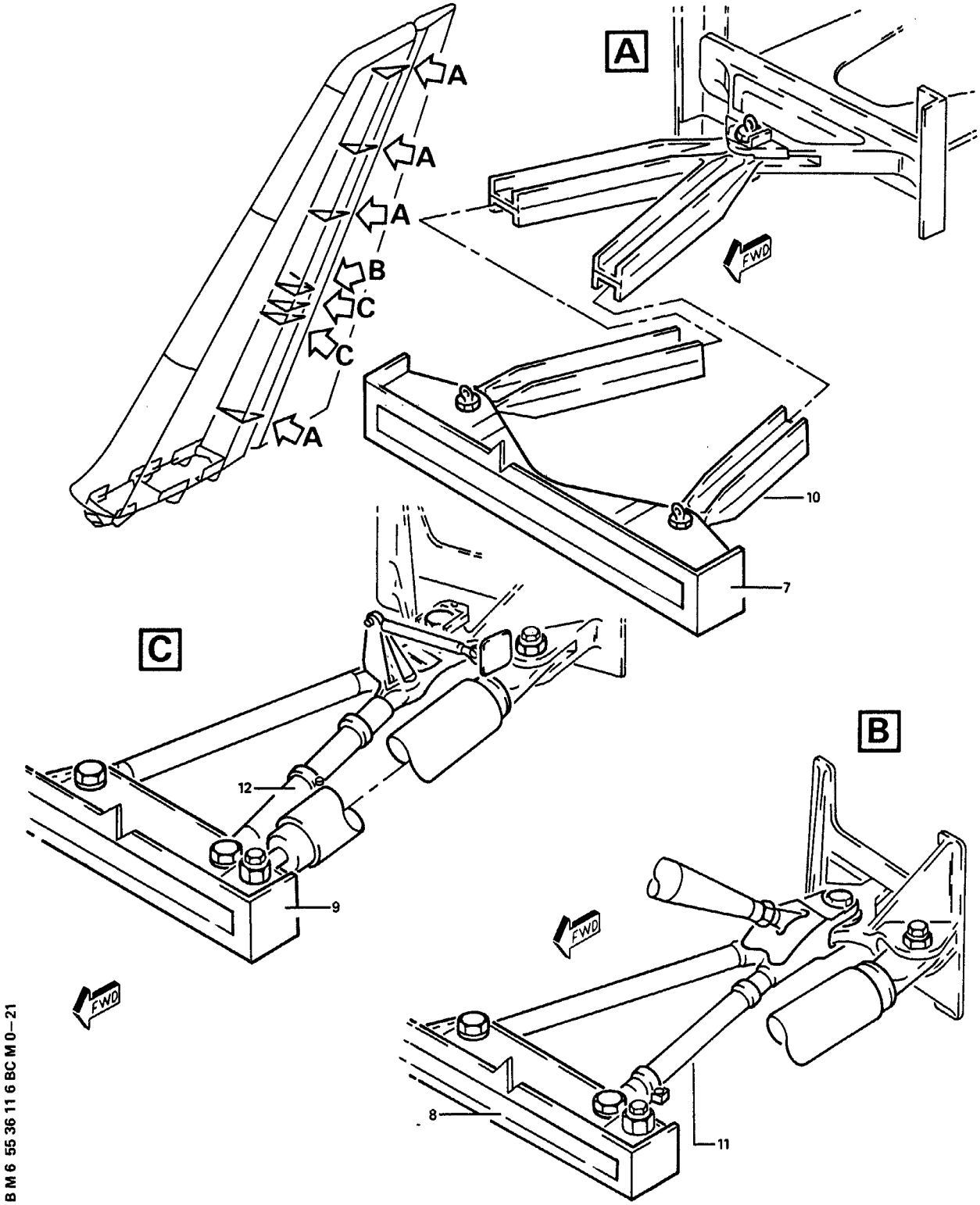
(g)Remove rudder leading edge access panels (Ref. 55-42-13, P. Block 401).

(h)Remove side fairings (Ref. 53-10-69, P. Block 401).

(2)Inspection of Composite Attach Fittings
(a)Special damage limits are as follows:
1 Impact delamination without visible cracks/holes
- up to 140 mm (0.22 sq.in.) max., no immediate repair necessary.
2 Other delamination
- up to 180 mm (0.28 sq.in.) max., no immediate repair necessary.
NOTE : Delaminations closer than 50 mm (2.0 in.) to each other must be calculated as single delamination.
3 Abrasion, scratches in main and transverse load fittings (Ref. Fig. 601)
- up to 2.0 mm (0.8 in.) depth and up to 100 mm (4.0 in.) max. length, to lugs, no immediate repair necessary.
NOTE : If distance between defects is less than 250 mm (9.843 in.) they must be calculated as one damaged area.
- up to 1.0 mm (0.4 in.) depth and up to 100 mm (4.0 in.) max. length, to shear lugs, no immediate repair necessary.
NOTE : If distance between defects is less than 250 mm (9.843 in.) they must be calculated as one damaged area.
4 Abrasion, scratches in stabilizer attach fittings
- up to 0.4 mm (0.016 in.) depth and up to 50 mm (1.969 in.) max. length, no immediate repair necessary (Ref. Fig. 602).
NOTE : If distance between defects is less than 250 mm (9.843 in.) they must be calculated as one damaged area.
(b)Inspect attach fittings for damaged paintwork, delamination, scratches, abrasions, cracks and security of fasteners. Pay particular attention to the following areas: (Ref. Fig. 601, 602).
1 Attach fittings (7) and support structure for rudder hinge arms at vertical stablizer RIB5 and 17.
2 Attach fitting (9) and support structure for rudder hinge arm and hydraulic actuator attachment at vertical stabilizer RIB8.
3 Attach fitting (9) and support structure for rudder hinge arm and hydraulic actuator attachment at vertical stabilizer RIB9.
4 Attach fitting (8) and support structure for rudder hinge arm and hydraulic actuator attachment at vertical stabilizer RIB10.
5 Attach fittings (7) and support structure for rudder hinge arms at vertical stabilizer RIB13 and 15.
6 Vertical stabilizer forward, center, and aft transverse load fittings (2, 4, 6).
7 Vertical stabilizer forward, center, and rear main attach fittings (1, 3, 5).
NOTE : Should stated limits be exceeded, a structural repair must be carried out, or component must be replaced.



Main and Transverse Load Fittings
Figure 601



Attach Fittings and Hinge Arms
Figure 602

(c)Inspect bushes in attach fittings for:
1 Secure seating.
2 Satisfactory surface.
3 Flush fit.
4 If play is found or surface damage is observed, component must be replaced (Ref. 55-36-11, P. Block 801).

(3)Inspection of all Hinge Arms
(a)Specific damage limitations for the following areas:
1 Hinge arms (except lugs)
2 Diagonal struts
3 Damage limits for steps 1 and 2 are as follows:
Corrosion and Marks as follows:
For rudder hinge arms No. 1 and 7
- 10% of material thickness.
- Rework limits for flange ends are:
'x'=1.5 mm (0.06 in.) and 'y'=2.0 mm (0.08 in.) (Ref. Fig. 603).
For rudder hinge arms No. 5 and 6
- 20% of material thickness.
- Rework limits for flange ends are:
'x'=2.0 mm (0.08 in.) and 'y'=3.0 mm (0.12 in.) (Ref. Fig. 603).
For rudder hinge arms No. 2 thru 4
- 5% of material thickness over total area.
- 20% of material thickness. Max. area 400 mm (0.62 sq.in.).
For rudder hinge arms No. 1, 5 thru 7 on bonding points
- 50% of material thickness (Ref. Fig. 603).
NOTE : If attach point for bonding angle is corroded, install angle on opposite side of hinge arm.
Dents and Cracks
- Not permitted

(b)Damage limits for hinge arm lugs refer to Tables 601 thru 604.
NOTE : Should damage limits be exceeded, a structural repair must be carried out or component must be replaced.
1 For removal of scratches, marks and dents refer to 51-73-10, P. Block 801.
2 For removal of corrosion on:
- Support strut refer to 51-74-10, P. Block 801.
- Hinge arms refer to 55-36-11, P. Block 801.
3 For repair of paint coatings on:
- Support strut refer to 51-75-10, P. Block 801.
- Hinge arms refer to 55-36-11, P. Block 801.

(c)Inspect hinge arms and support strut for scratches, marks, dents, corrosion, loose or missing rivets and condition of sealant and paint coatings.
1 Pay special attention of the following:
- Hinge arm lugs, edges and bonding strap attachments.
NOTE : If attach point for bonding angle on H-section hinge arms is corroded, install angle on opposite leg of hinge arm if possible.

(d)Measurement of Minimum Hinge Arm Lug Values after Rework (Ref. Fig. 603).

NOTE : Condition A is upper and/or lower surface to be reworked only. Condition B is upper and/or lower surface plus edge to be reworked.

Aluminum Rudder Hinge Arms, Forward Lug, LH and RH (Ref. Fig. 603)

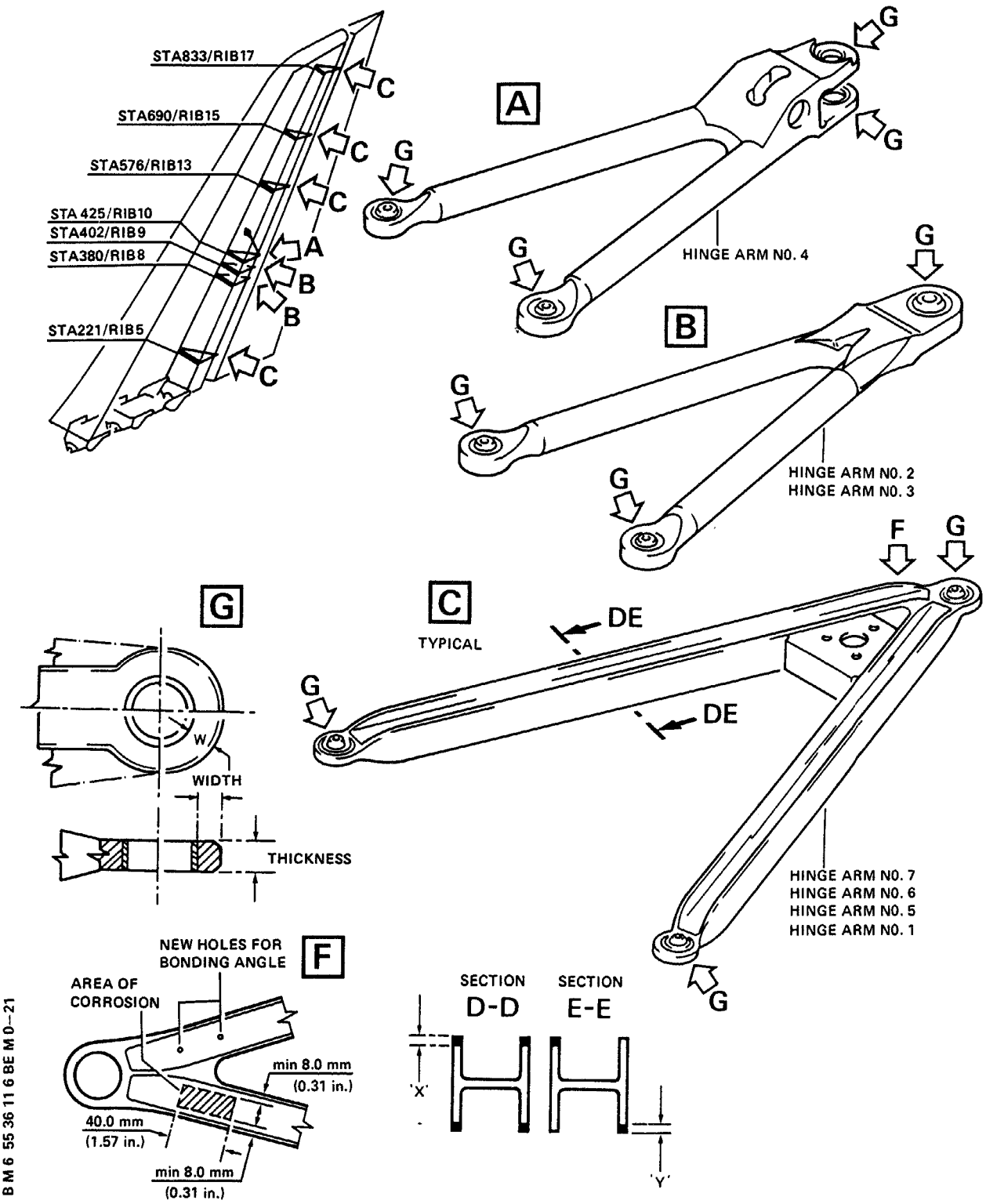
HINGE ARM NO.	CONDITION	LUG THICKNESS VALUES mm (in.) NOMINAL	LUG THICKNESS VALUES mm (in.) MIN.	LUG WIDTH VALUES mm (in.) NOMINAL	LUG WIDTH VALUES mm (in.) MIN.
1	A	9.0 (0.354)	8.0 (0.315)		
	B	9.0 (0.354)	8.5 (0.335)	12.0 (0.472)	11.0 (0.433)
5, 6, 7	A	9.0 (0.354)	8.0 (0.315)		
	B	9.0 (0.354)	8.5 (0.335)	8.0 (0.315)	7.2 (0.283)

Table 601

Aluminum Rudder Hinge Arms, Aft Lug (Ref. Fig. 603)

HINGE ARM NO.	CONDITION	LUG THICKNESS VALUES mm (in.) NOMINAL	LUG THICKNESS VALUES mm (in.) MIN.	LUG WIDTH VALUES mm (in.) NOMINAL	LUG WIDTH VALUES mm (in.) MIN.
1	A	9.0 (0.354)	8.4 (0.331)		
	B	9.0 (0.354)	8.7 (0.343)	10.0 (0.394)	9.2 (0.362)
5, 6, 7	A	9.0 (0.354)	8.0 (0.315)		
	B	9.0 (0.354)	8.5 (0.335)	8.0 (0.315)	7.0 (0.276)

Table 602



Hinge Arms - Vertical Stabilizer
Figure 603

Steel Rudder Hinge Arms, Forward Lug (Ref. Fig. 603)

HINGE ARM NO.	CONDITION	LUG THICKNESS VALUES mm (in.)		LUG WIDTH VALUES mm (in.)	
		NOMINAL	MIN.	NOMINAL	MIN.
2, 3, 4	A	14.1 (0.555)	12.7 (0.50)		
	B	14.1 (0.555)	13.4 (0.528)	12.65 (0.498)	11.7 (0.461)

Table 603

Steel Rudder Hinge Arms, Aft Lug (Ref. Fig. 603)

HINGE ARM NO.	CONDITION	LUG THICKNESS VALUES mm (in.)		LUG WIDTH VALUES mm (in.)	
		NOMINAL	MIN.	NOMINAL	MIN.
2, 3	A	24.5 (0.965)	22.8 (0.898)		
	B	24.5 (0.965)	24.1 (0.949)	7.9 (0.311)	7.2 (0.283)
4 UPPER LUG	A	9.0 (0.354)	8.0 (0.315)		
	B	9.0 (0.354)	8.5 (0.335)	18.5 (0.728)	14.5 (0.571)
4 LOWER LUG	A	9.0 (0.354)	8.0 (0.315)		
	B	9.0 (0.354)	8.5 (0.334)	15.0 (0.591)	11.0 (0.433)

Table 604

(e)Max. rework for attachment area of support strut on hinge arm No. 4 is 10% of cross-sectional area ('a'x'b') (Ref. Fig. 604).

(f)General damage limitations:

1 Scratches (Ref. Fig. 605). For removal of scratches and marks refer to 51-73-10, P. Block 801.

2 Marks: 5% of material thickness over a maximum area of 400 mm (0.62 sq.in.) is permissible.

3 Dents: not permissible.

4 Corrosion: 5% of material thickness over a maximum area of 400 mm (0.62 sq.in.) is permissible. For removal of corrosion refer to 51-74-10, P. Block 801.

5 Damaged paintwork. For repair of damaged paintwork refer to 51-75-10, P. Block 801.

6 Cracks: not permissible.

(g)Inspect support strut for scratches, marks, dents, corrosion, damaged paintwork, security of fasteners, and cracks. If limitations are exceeded a structural repair must be carried out, or component replaced. Pay particular attention to the following areas:

1 Rudder hinge arm No. 1 (10) at vertical stabilizer RIB5.

2 Rudder hinge arm No. 2 (12) at vertical stabilizer RIB8.

3 Rudder hinge arm No. 3 (12) at vertical stabilizer RIB9.

4 Rudder hinge arm No. 4 (11) at vertical stabilizer RIB10.

5 Rudder hinge arm No. 5 (10) at vertical stabilizer RIB13.

6 Rudder hinge arm No. 6 (10) at vertical stabilizer RIB15.

7 Rudder hinge arm No. 7 (10) at vertical stabilizer RIB17.

(h)Make certain that drainage holes in the support strut are clear.

(4)Inspection of Bearings in Hinge Arms

(a)Bearings at vertical stabilizer rear spar:

1 Apply force by hand to the hinge arm in horizontal direction, if a play is found greater than 0.299 mm (0,0090 in.), replace defective bearing (Ref. 55-36-11, P. Block 801).

2 Apply force by hand to the hinge arm in downward and upward direction, if a play is found greater than 0.4 mm (0.0157 in.), replace defective bearing (Ref. 55-36-11, P. Block 801).

(b)Teflon lined bearings at rudder axis, check that dimension 'X' does not exceed 1 mm (0.039 in.), measure according to the following procedure (Ref. Fig. 606):

1 Apply force (F) by hand to the head of the bolt (60) whilst taking measurement.

2 Apply force (F1) by hand to the hinge arm in the downward direction. Measure and record dimension 'A1'.

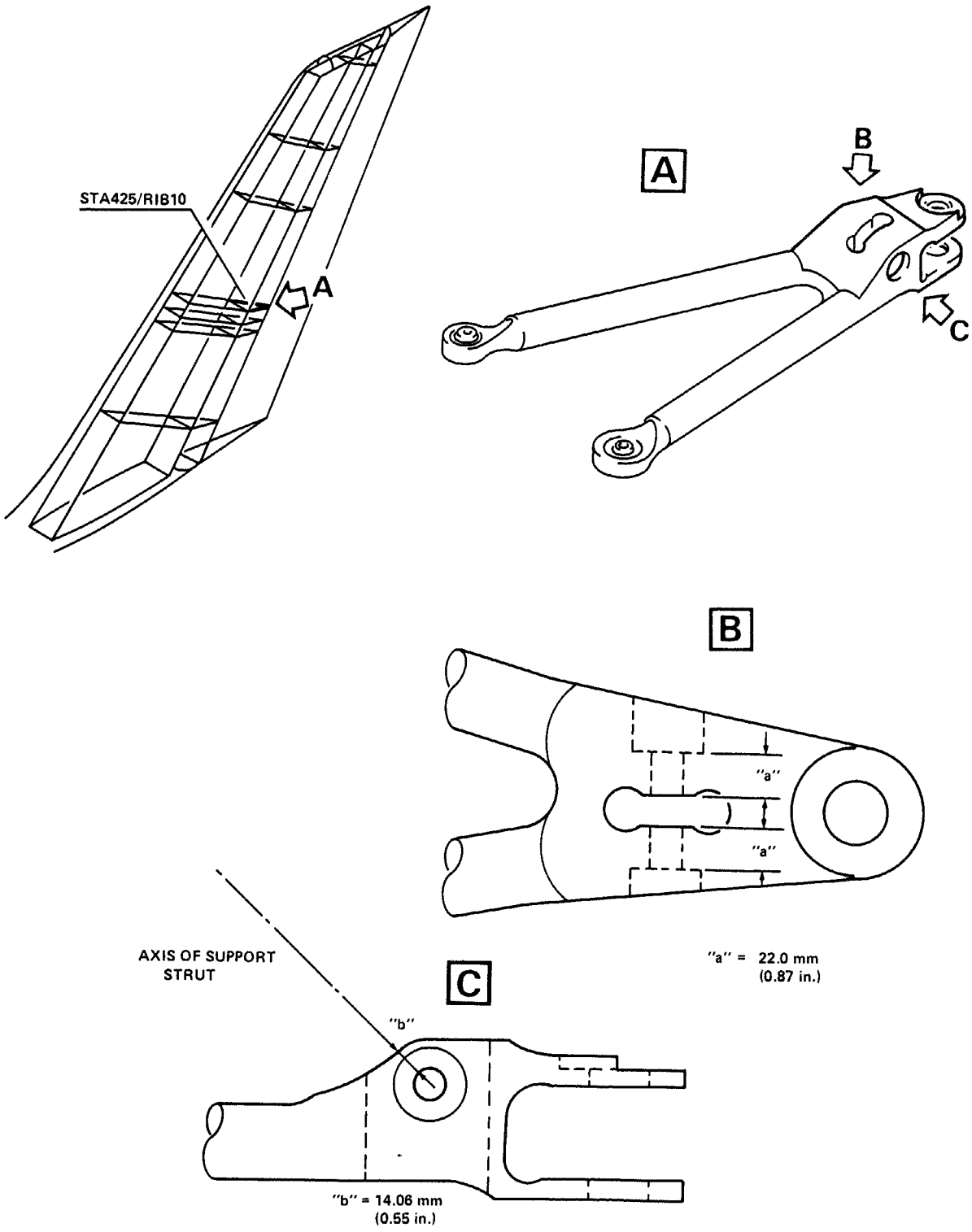
3 Apply force (F2) by hand to the hinge arm in the upward direction. Measure and record dimension 'A2'.

4 Calculate dimension 'X' as follows: X = A1 - A2

5 If dimension 'X' exceeds the allowable limit of 1 mm (0.039 in.) replace defective bearing (Ref. 55-36-11, P. Block 801).

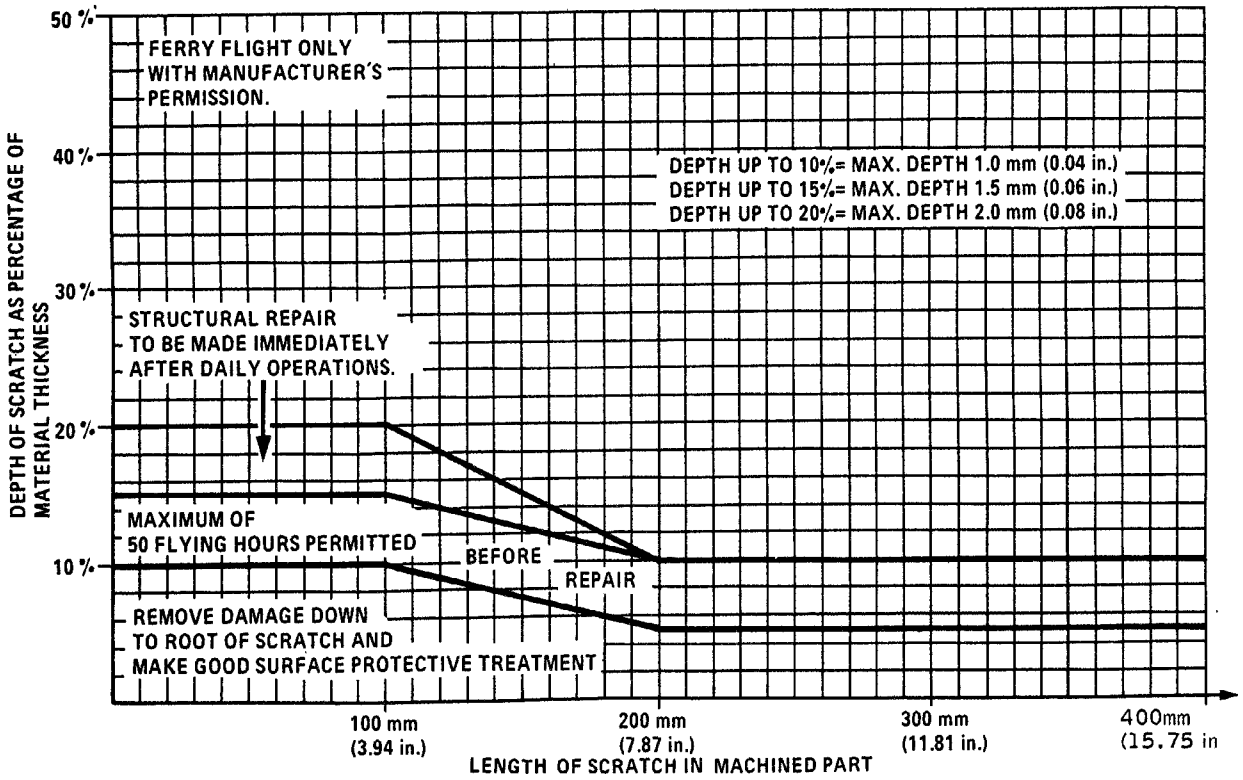
(c)Apply force (F3) by hand to the hinge arm in horizontal direction, and if you find play replace the defective bearing.

(d)Check bearing at hinge arm No. 4, dimension 'Y' should not be under 2.5 mm (0.098 in.) (Ref. Fig. 606). If dimension 'Y' is under 2.5 mm (0.098 in.) replace bearing (Ref. 55-46-13, P. Block 401).



Support Strut Attachment
Figure 604

NOTE: Inspect only one rudder hinge arm at a time.



B M 6 55 36 11 6 BJ M 0–21

Scratch Limits in Machined Parts
Figure 605

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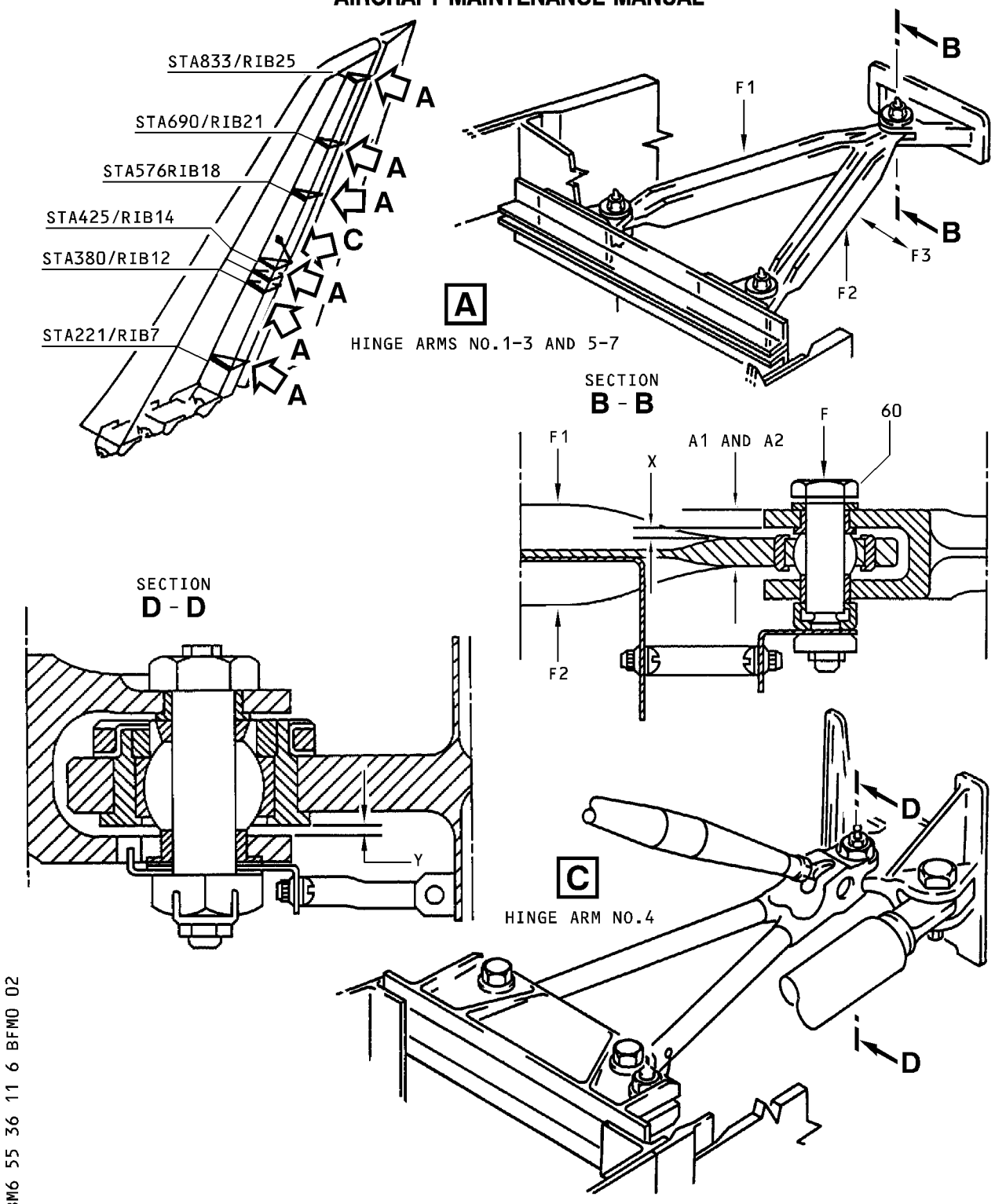


Hinge Arm Connection - Rudder
Figure 606

(5)Measurement of Fits and Clearances
(a)Remove hinge arm no. 1 (Ref. 55-36-43, P. Block 401).
(b)Remove hinge arm no. 7 (Ref. 55-36-47, P. Block 401).
(c)Remove hinge arms no. 5 and 6 (Ref. 55-36-46, P. Block 401).
1 Inspect all bearings, bushes and bolts for cracks, corrosion and marks.
2 Measure fits and clearances of components as listed in the following table:

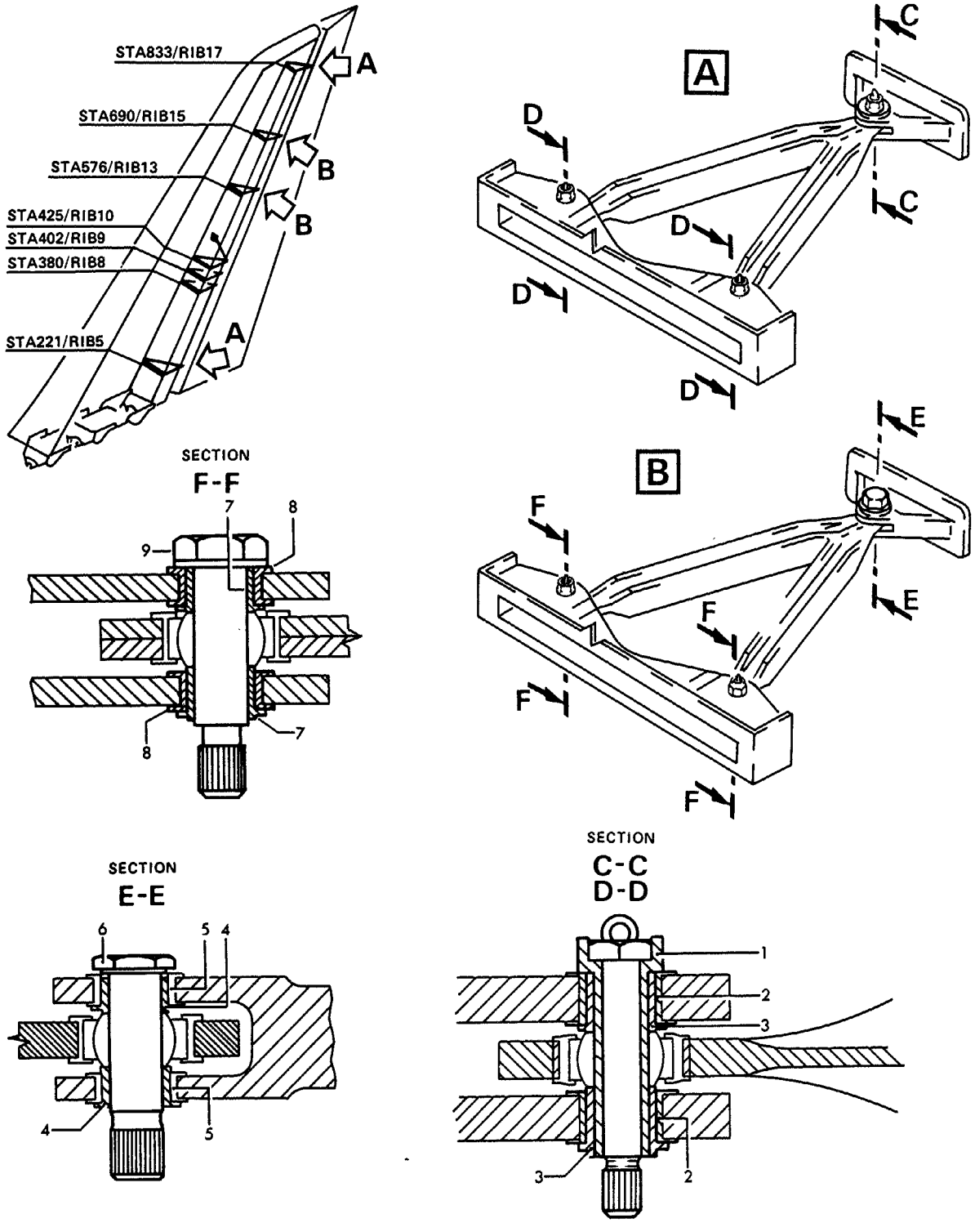
Fits and Clearances, Rudder Hinge Arms No. 1, 5, 6 and 7 (Ref. Fig. 607)

Detail and Item No.	Original Mfg. Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
C-C							
ID2	15.865 (0.6246)	15.905 (0.6262)			15.905 (0.6262)	15.925 (0.6270)	
			-0.015 (-0.0006)	0.042 (0.0017)			0.082 (0.0032)
OD3	15.863 (0.6245)	15.880 (0.6252)			15.843 (0.6237)	15.863 (0.6245)	
ID3	12.700 (0.5000)	12.718 (0.5007)			12.718 (0.5007)	12.738 (0.5015)	
			0.015 (0.0006)	0.050 (0.0020)			0.090 (0.0035)
OD1	12.668 (0.4987)	12.685 (0.4994)			12.648 (0.4980)	12.668 (0.4987)	
D-D							
ID2	16.000 (0.6299)	16.018 (0.6306)			16.018 (0.6306)	16.038 (0.6314)	
			-0.008 (-0.0003)	0.027 (0.0011)			0.067 (0.0026)
OD3	15.991 (0.6296)	16.008 (0.6302)			15.971 (0.6288)	15.991 (0.6296)	
ID3	12.700 (0.5000)	12.718 (0.5007)			12.718 (0.5007)	12.738 (0.5015)	
			0.015 (0.0006)	0.050 (0.0020)			0.090 (0.0035)
OD1	12.668 (0.4987)	12.685 (0.4994)			12.648 (0.4980)	12.668 (0.4987)	

Detail and Item No.	Original Mfg. Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
E-E							
ID5	15.865 (0.6246)	15.905 (0.6262)			15.905 (0.6262)	15.925 (0.6270)	
			-0.015 (-0.0006)	0.042 (0.0017)			0.082 (0.0032)
OD4	15.863 (0.6245)	15.880 (0.6252)			15.843 (0.6237)	15.863 (0.6245)	
ID4	12.700 (0.5000)	12.718 (0.5007)			12.718 (0.5007)	12.738 (0.5015)	
			0.006 (0.0002)	0.035 (0.0014)			0.075 (0.0030)
OD6	12.683 (0.4993)	12.694 (0.4998)			12.663 (0.4985)	12.683 (0.4993)	
F-F							
ID8	16.000 (0.6299)	16.018 (0.6306)			16.018 (0.6306)	16.038 (0.6314)	
			-0.008 (-0.0003)	0.027 (0.0011)			0.067 (0.0026)
OD7	15.991 (0.6296)	16.008 (0.6302)			15.971 (0.6288)	15.991 (0.6296)	
ID7	12.700 (0.5000)	12.718 (0.5007)			12.718 (0.5007)	12.738 (0.5015)	
			0.006 (0.0002)	0.035 (0.0014)			0.075 (0.0030)
OD9	12.683 (0.4993)	12.694 (0.4998)			12.663 (0.4985)	12.683 (0.4993)	

Table 605

3 Should stated limits be exceeded, component must be replaced.
4 Install hinge arms no. 5 and 6 (Ref. 55-36-46, P. Block 401).
5 Install hinge arm no. 7 (Ref. 55-36-47, P. Block 401).
6 Install hinge arm no. 1 (Ref. 55-36-43, P. Block 401).



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Hinge Arms No. 1, 5, 6 and 7 - Rudder
Figure 607

(d)Remove hinge arms no. 2 and 3 (Ref. 55-36-44, P. Block 401).

1 Inspect all bearings, bushes and bolts for cracks, corrosion and marks.

2 Measure fits and clearances of components as listed in the following table:

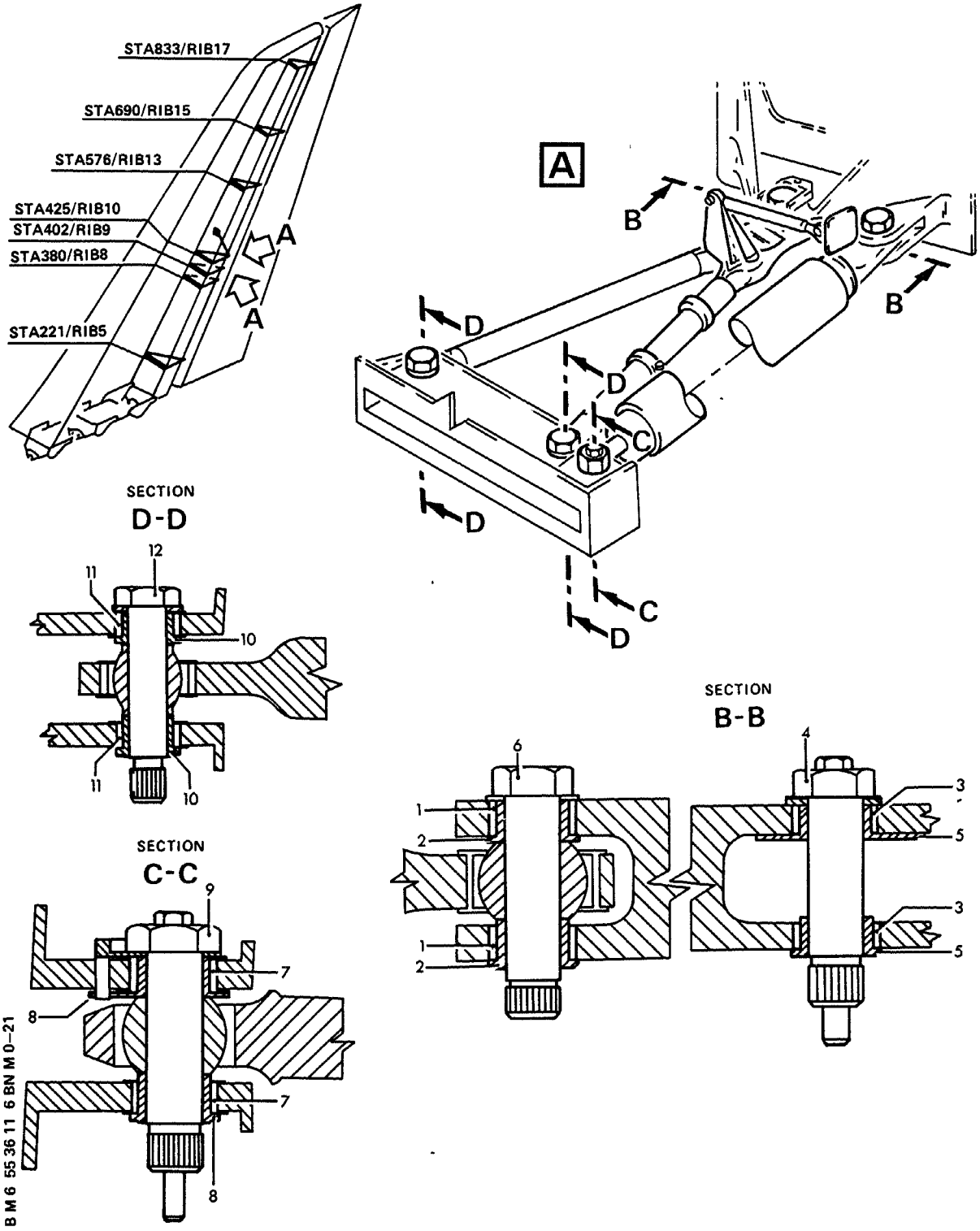
Fits and Clearances, Rudder Hinge Arms No. 2 and 3 (Ref. Fig. 608)

Detail and Item No.	Original Mfg. Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
B-B							
ID1	31.716 (1.2487)	31.767 (1.2507)			31.767 (1.2507)	31.787 (1.2515)	
			-0.020 (-0.0008)	0.053 (0.0021)			0.093 (0.0037)
OD2	31.714 (1.2486)	31.736 (1.2494)			31.694 (1.2478)	31.714 (1.2486)	
ID2	25.400 (1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD6	25.380 (0.9992)	25.393 (0.9997)					
ID3	31.716 (1.2487)	31.767 (1.2507)					
			-0.020 (-0.0008)	0.053 (0.0021)	no wear permissible		
OD5	31.714 (1.2486)	31.736 (1.2494)					
ID5	25.400 (1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD4	25.380 (0.9992)	25.393 (0.9997)					

Detail and Item No.	Original Mfg. Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
C-C							
ID7	32.000 (1.2598)	32.025 (1.2608)					
			-0.008 (-0.0003)	0.039 (0.0015)	no wear permissible		
OD8	31.986 (1.2593)	32.008 (1.2602)					
ID8	25.400 (1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD9	25.380 (0.9992)	25.393 (0.9997)					
D-D							
ID11	24.000 (0.9449)	24.021 (0.9457)			24.021 (0.9457)	24.041 (0.9465)	
			-0.008 (-0.0003)	0.032 (0.0013)			0.072 (0.0028)
OD10	23.989 (0.9444)	24.008 (0.9452)			23.969 (0.9437)	23.989 (0.9444)	
ID10	19.050 (0.7500)	19.071 (0.7508)			19.071 (0.7508)	19.091 (0.7516)	
			0.007 (0.0003)	0.041 (0.0016)			0.081 (0.0032)
OD12	19.030 (0.7492)	19.043 (0.7497)			19.010 (0.7484)	19.030 (07492)	

Table 606

3 Should stated limits be exceeded, component must be replaced.
4 Install hinge arms no. 2 and 3 (Ref. 55-36-44, P. Block 401).



Hinge Arms No. 2 and 3 - Rudder
Figure 608

(e)Remove hinge arm no. 4 (Ref. 55-36-45, P. Block 401).

1 Inspect all bearings, bushes and bolts for cracks, corrosion and marks.

2 Measure fits and clearances of components as listed in the following table:

Fits and Clearances, Rudder Hinge Arm No. 4 (Ref. Fig. 609)

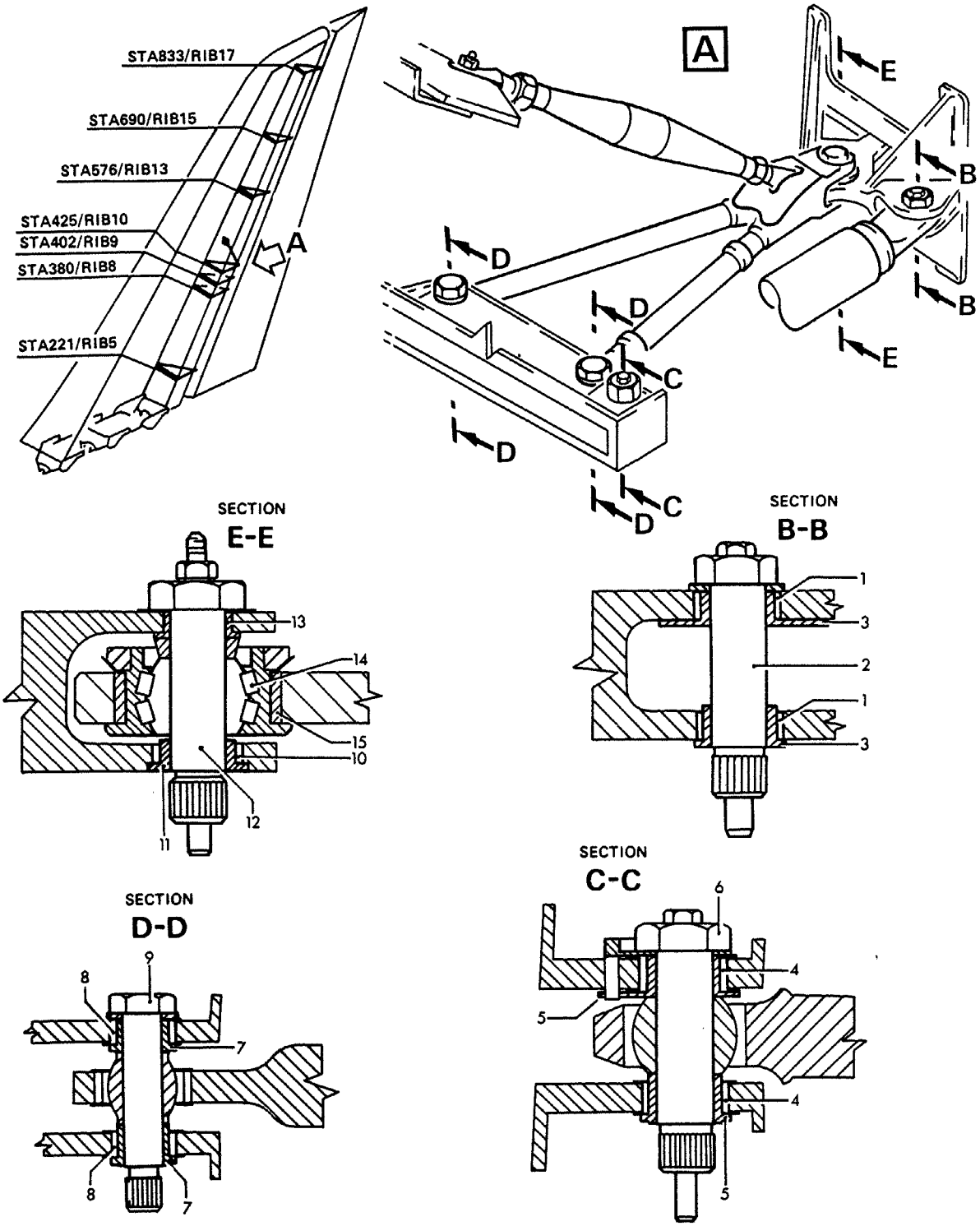
Detail and Item No.	Original Mfg. Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm(in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
B-B							
ID1	31.716 (1.2487)	31.767 (1.2507)					
			-0.020 (-0.0008)	0.053 (0.0021)	no wear permissible		
OD3	31.714 (1.2486)	31.736 (1.2494)					
ID3	25.400 (1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD2	25.380 (0.9992)	25.393 (0.9997)					
C-C							
ID4	32.000 (1.2598)	32.025 (1.2608)					
			-0.008 (-0.0003)	0.039 (0.0015)	no wear permissible		
OD5	31.986 (1.2593)	32.008 (1.2602)					
ID5	25.400 (1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD6	25.380 (0.9992)	25.393 (0.9997)					

Detail and Item No.	Original Mfg. Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm(in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
D-D							
ID8	24.000 (0.9449)	24.021 (0.9457)			24.021 (0.9457)	24.041 (0.9465)	
			-0.008 (-0.0003)	0.032 (0.0013)			0.072 (0.0028)
OD7	23.989 (0.9444)	24.008 (0.9452)			23.969 (0.9437)	23.989 (0.9444)	
ID7	19.050 (0.7500)	19.071 (0.7508)			19.071 (0.7508)	19.091 (0.7516)	
			0.007 (0.0003)	0.041 (0.0016)			0.081 (0.0032)
OD9	19.030 (0.7492)	19.043 (0.7497)			19.010 (0.7484)	19.030 (0.7492)	
E-E							
ID10	32.000 (1.2598)	32.025 (1.2608)					
			0.009 (0.0004)	0.050 (0.0020)	no wear permissible		
OD11	31.975 (1.2589)	31.991 (1.2595)					
ID11	25.400 (1.0000)	25.421 (1.0008)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
OD12	25.380 (0.9992)	25.393 (0.9997)					
			0.007 (0.0003)	0.041 (0.0016)	no wear permissible		
ID13	25.400 (1.0000)	25.421 (1.0008)					

Detail and Item No.	Original Mfg. Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm(in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
OD15	70.169 (2.7626)	70.190 (2.7634)					
ID15	62.000 (2.4409)	62.046 (2.4428)					
			0.000 (0.0000)	0.059 (0.0023)	no wear permissible		
OD14	61.987 (2.4404)	62.000 (2.4409)					
ID14	25.388 (0.9995)	25.400 (1.0000)					

Table 607

3 Should stated limits be exceeded, component must be replaced.
4 Install hinge arm no. 4 (Ref. 55-36-45, P. Block 401).



B M 6 55 36 11 6 BP M 0–25

Hinge Arm No. 4 - Rudder
Figure 609

(f)Remove support strut (Ref. 55-36-45, P. Block 401).

1 Inspect all bearings, bushes and bolts for cracks, corrosion and marks.

2 Measure fits and clearances of components as listed in the following table:

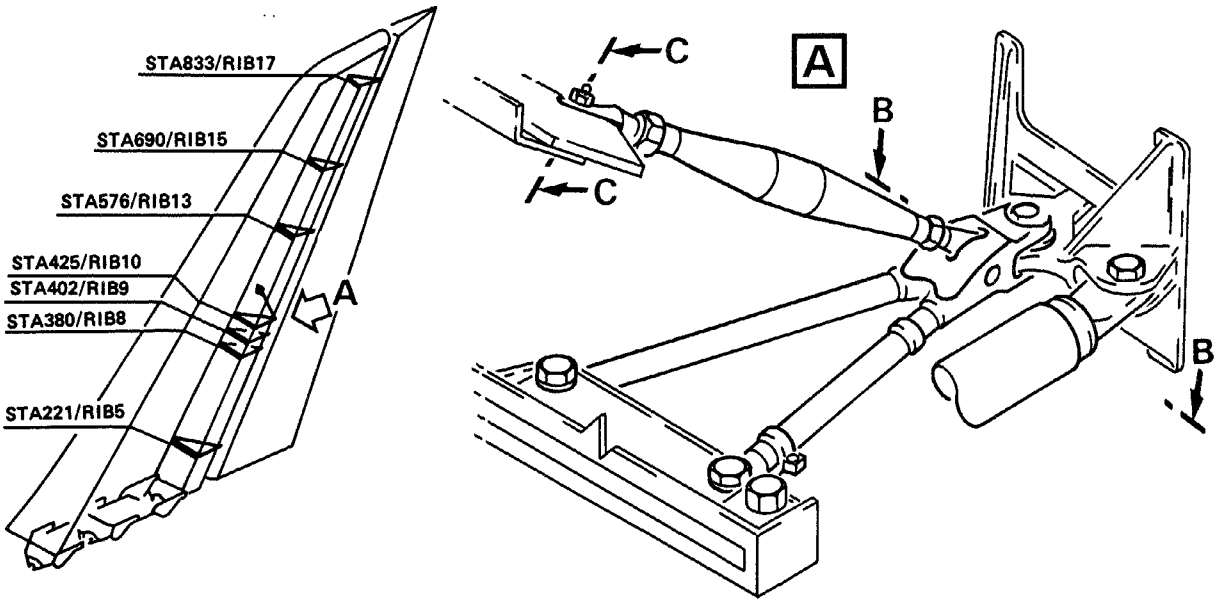
Fits and Clearances, Rudder Support Strut (Ref. Fig. 610)

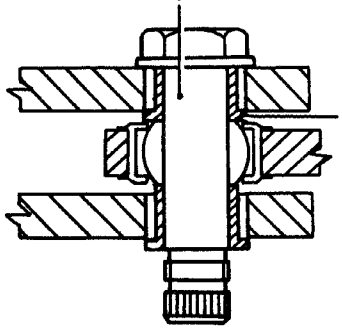
Detail and Item No.	Original Mfg. Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm(in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
B-B							
ID1	15.875 (0.6250)	15.893 (0.6257)			15.893 (0.6257)	15.913 (0.6265)	
			0.006 (0.0002)	0.035 (0.0014)			0.075 (0.0030)
OD2	15.858 (0.6243)	15.869 (0.6248)			15.838 (0.6235)	15.858 (0.6243)	
C-C							
OD3	15.858 (0.6243)	15.869 (0.6248)			15.838 (0.6235)	15.858 (0.6243)	

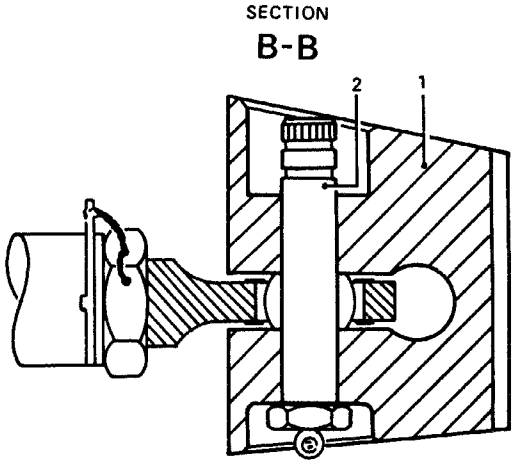
Table 608

3 Should stated limits be exceeded, component must be replaced.

4 Install support strut (Ref. 55-36-45, P. Block 401).







B M 6 55 36 11 6 BR M 0–21

Support Strut - Rudder
Figure 610

(6)Close-Up
(a)Make certain that all drain holes are free of obtruction.
(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(c)Install side fairings (Ref. 53-10-69, P. Block 401).
(d)Install rudder leading edge access panels (Ref. 55-42-13, P. Block 401).
(e)Close or install vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).
(f)Close vertical stabilizer access doors 311AZ and 311BZ and remove access ladder.
(g)Close equipment compartment access door 312AR.
(h)Return stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(j)Remove access platform.

VERTICAL STABILIZER ATTACH FITTINGS - INSPECTION/CHECK

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION : PERCENTAGE (%) OF ALLOWABLE DAMAGE IS ALWAYS RELATED TO THE NOMINAL MATERIAL THICKNESS AS SPECIFIED IN SRM (STRUCTURAL REPAIR MANUAL).

NOTE : Should a defect be suspected during the following inspection/check, an approved nondestructive test must be carried out.
If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

1. Attach Fittings - Visual Inspection

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform, 5.5 to 14.5 m (18 to 48 ft.)
(2)98A55307516000	Ladder - Access, Vertical Stabilizer

Referenced Procedures

- 51-73-10, P. Block 801	Repair of Minor Damage
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 53-10-69, P. Block 401	Vertical Stabilizer Side Fairings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-30-00, P. Block 301	Vertical Stabilizer - Access Precautions
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-46-13, P. Block 401	Rudder Hinge Bearing No. 4
	NTM - Nondestructive Testing Manual
	SRM - Structural Repair Manual

B. Procedure

(1)Job Set-Up

(a)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

(b)Position access platforms.

(c)Open equipment compartment access door 312AR.

(d)Open vertical stabilizer access door 311AZ.

(e)Position access ladder P/N 98A55307516000 and open vertical stabilizer access door 311BZ.

(f)Open or remove vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).

(g)Remove side fairings (Ref. 53-10-69, P. Block 401).

(2)Inspection of Composite Attach Fittings

(a)Special damage limits are as follows:

1 Impact delamination without visible cracks/holes
- up to 140 mm (0.22 sq.in.) max., no immediate repair necessary.

2 Other delamination
- up to 180 mm (0.28 sq.in.) max., no immediate repair necessary.

NOTE : Delaminations closer than 50 mm (2.0 in.) to each other must be

calculated as single delamination.

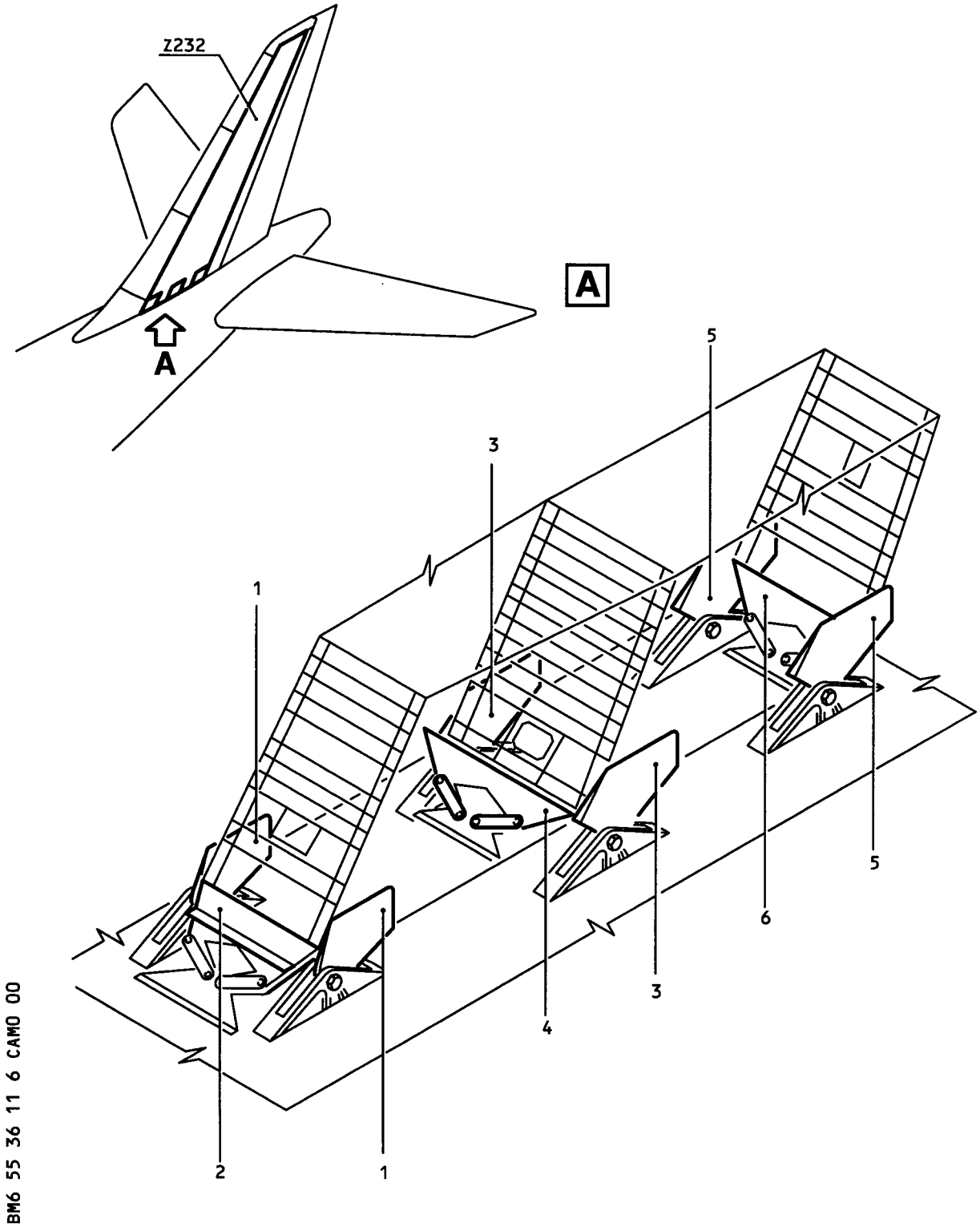
3 Abrasion, scratches in main and transverse load fittings (Ref. Fig. 601)
- up to 2.0 mm (0.8 in.) depth and up to 100 mm (4.0 in.) max. length, to lugs, no immediate repair necessary.
  NOTE : If distance between defects is less than 250 mm (9.843 in.) they must be calculated as one damaged area.
- up to 1.0 mm (0.4 in.) depth and up to 100 mm (4.0 in.) max. length, to shear lugs, no immediate repair necessary.
  NOTE : If distance between defects is less than 250 mm (9.843 in.) they must be calculated as one damaged area.

(b)Inspect attach fittings for damaged paintwork, delamination, scratches, abrasions, cracks and security of fasteners. Pay particular attention to the following areas: (Ref. Fig. 601).
1 Vertical stabilizer forward, center, and aft transverse load fittings (2, 4, 6).
2 Vertical stabilizer forward, center, and rear main attach fittings (1, 3, 5).
NOTE : Should stated limits be exceeded, a structural repair must be carried out, or component must be replaced.

(c)Inspect bushes in attach fittings for:
1 Secure seating.
2 Satisfactory surface.
3 Flush fit.
4 If play is found or surface damage is observed, component must be replaced.

(d)General damage limitations:
1 Scratches (Ref. Fig. 602). For removal of scratches and marks refer to 51-73-10, P. Block 801.
2 Marks: 5% of material thickness over a maximum area of 400 mm 2 (0.62 sq.in.) is permissible.
3 Dents: not permissible.
4 Corrosion: 5% of material thickness over a maximum area of 400 mm 2 (0.62 sq.in.) is permissible. For removal of corrosion refer to 51-74-10, P. Block 801.
5 Damaged paintwork. For repair of damaged paintwork refer to 51-75-10, P. Block 801.
6 Cracks: not permissible.

(3)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Install side fairings (Ref. 53-10-69, P. Block 401).
(c)Close or install vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).
(d)Close vertical stabilizer access doors 311AZ and 311BZ and remove access ladder.
(e)Close equipment compartment access door 312AR.
(f)Return stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(g)Remove access platform.



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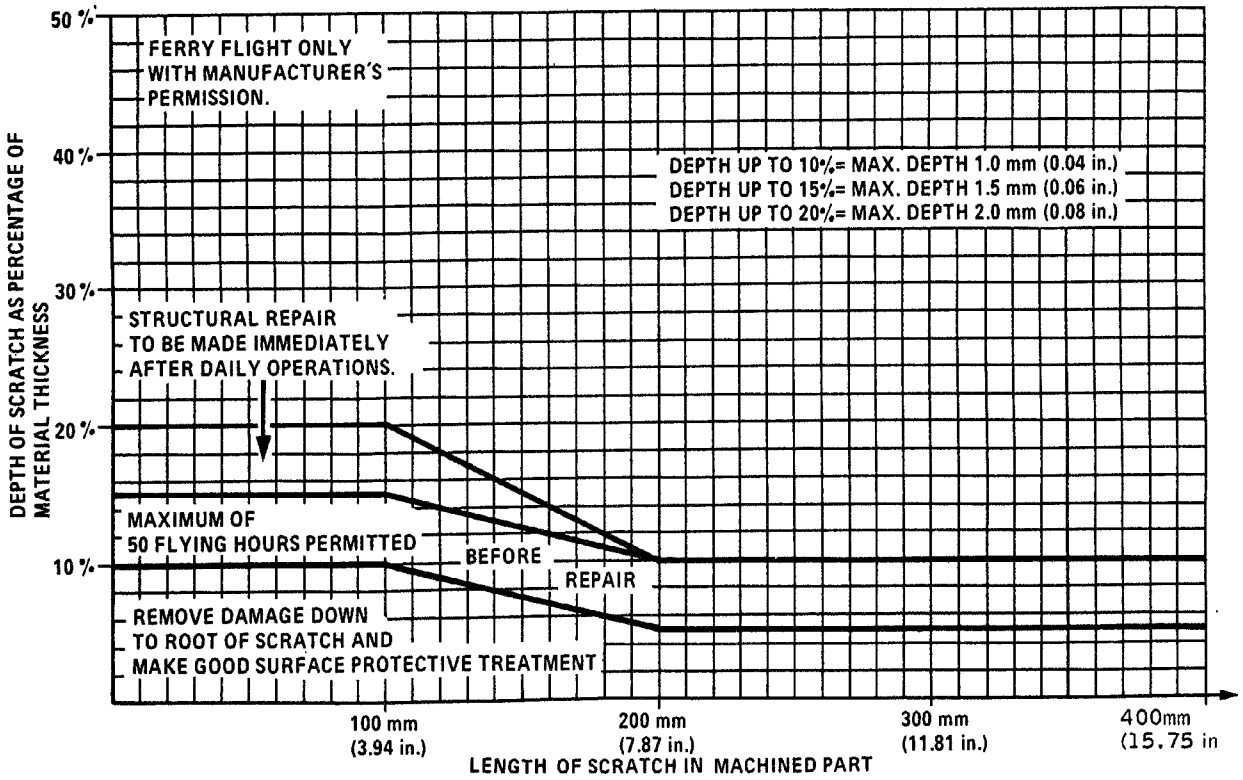
Main and Transverse Load Fittings
Figure 601



B M 6 55 36 11 6 BJ M 0–21

Scratch Limits in Machined Parts
Figure 602

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VERTICAL STABILIZER ATTACH FITTINGS - APPROVED REPAIRS

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reason for the Job

A. Bearing replacement on rudder hinge arms

B. Bush replacement on vertical stabilizer attach fittings

2. Equipment and Materials

	ITEM	DESIGNATION
	A.	Access Platform, 5.5 - 14.5 m (18 - 48 ft.)
R	B. 98A55308403000	Device - Milling and Crimping Rudder Bearings
	C. 98A55307626000	Device - Milling and Crimping
	D.	Drilling Machine (Spindle Speed between 50 and 300 rpm)
	E.	Protective Gloves
	F.	Protective Goggles
	G.	Protective Clothing
	H.	Brush
	J.	Cheesecloth
	K.	Masking Tape
	L.	Clean, Lint-Free Cloth
	M.	Warm Air Dryer
	N. Material No. 04-011	Common Greases (Ref. 20-31-00)
	P. Material No. 05-005	Special Materials (Ref. 20-31-00)
	Q. Material No. 05-027	Special Materials (Ref. 20-31-00)
	R. Material No. 05-042	Special Materials (Ref. 20-31-00)
	S. Material No. 09-013	Sealants (Ref. 20-31-00)
	T. Material No. 09-016	Sealants (Ref. 20-31-00)
	U. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
	V. Material No. 13-002	Pretreatment for Painting (Ref. 20-31-00)
	W. Material No. 16-001	Structure Paints (Ref. 20-31-00)
	X. Material No. 16-002	Structure Paints (Ref. 20-31-00)
	Y. Material No. 16-003	Structure Paints (Ref. 20-31-00)
	Z. Material No. 16-006	Structure Paints (Ref. 20-31-00)
	AA.Material No. 16-020	Structure Paints (Ref. 20-31-00)

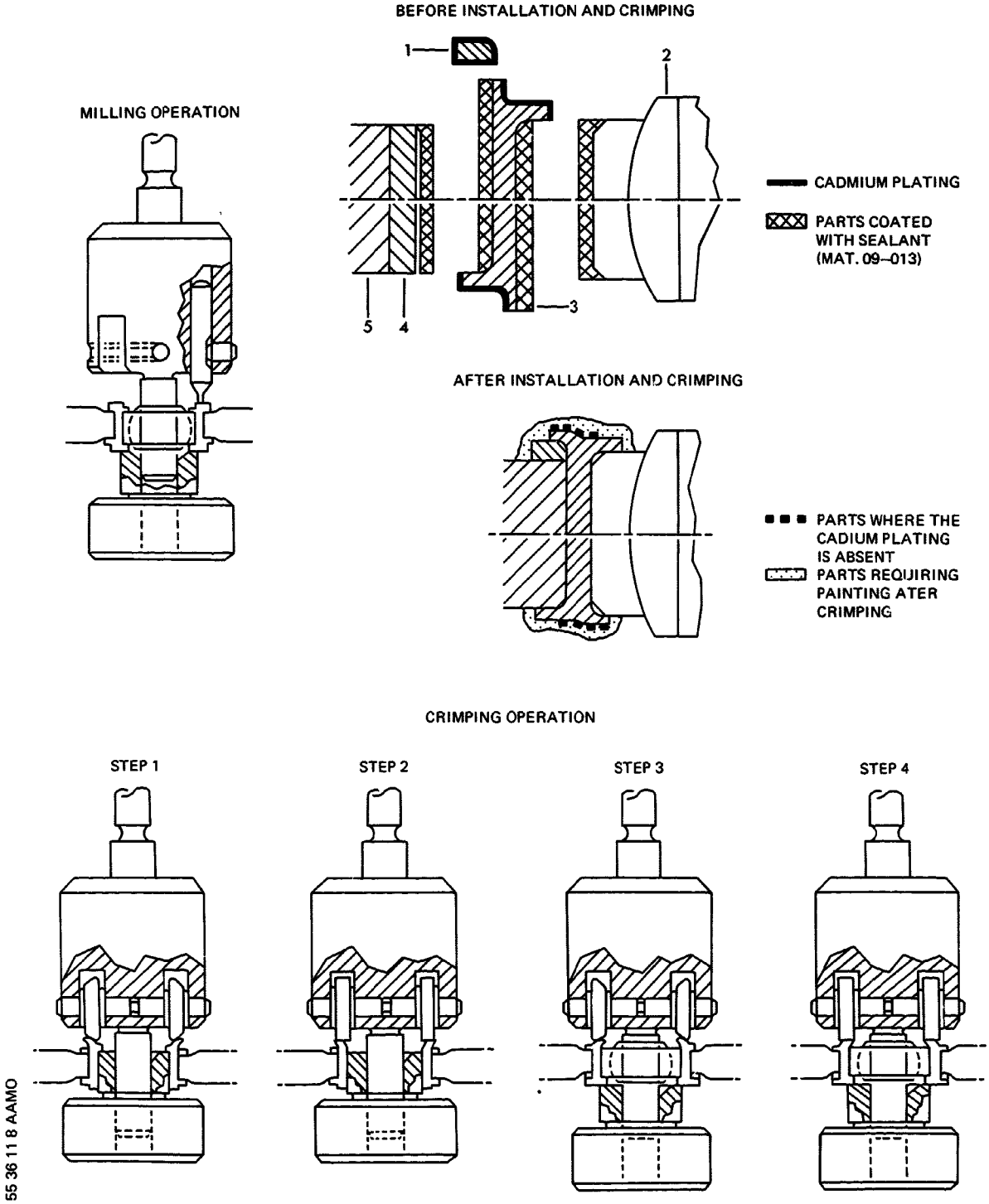
Referenced Procedures

- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-36-11, P. Block 601	Vertical Stabilizer Attach Fittings
- 55-36-43, P. Block 401	Rudder Hinge Arm No. 1
- 55-36-44, P. Block 401	Rudder Hinge Arms No. 2 and 3
- 55-36-45, P. Block 401	Rudder Hinge Arm No. 4
- 55-36-46, P. Block 401	Rudder Hinge Arms No. 5 and 6
- 55-36-47, P. Block 401	Rudder Hinge Arm No. 7

3. Procedure

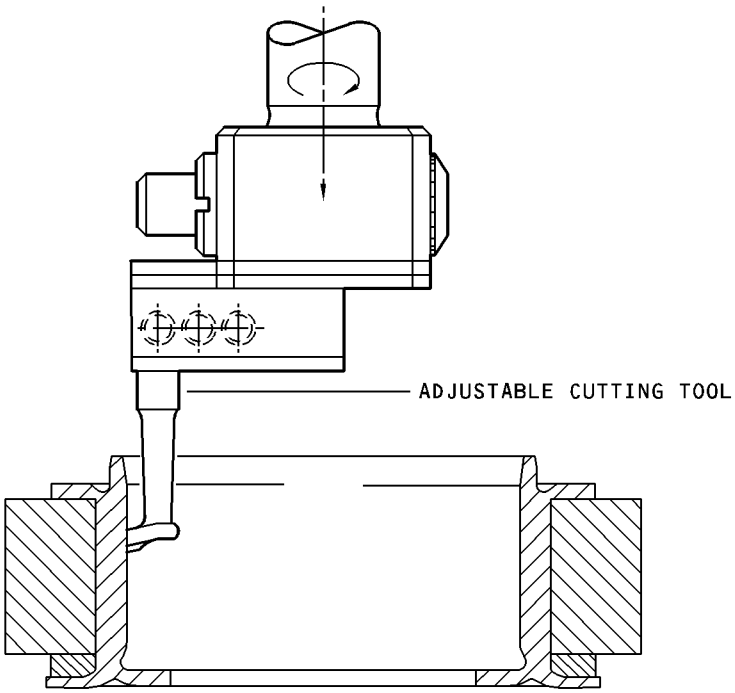
A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove rudder hinge arms as required (Ref. 55-36-43, P. Block 401, 55-36-44, P. Block 401, 55-36-45, P. Block 401, 55-36-46, P. Block 401, 55-36-47, P. Block 401).
(4)If corrosion is found or paint coating is damaged near a bearing, remove bearing.
(5)Carefully mask off bearings that remain in place to prevent ingress of foreign material.

B. Approved Repairs on Rudder Hinge Arm Bearings (Ref. Fig. 801, 802)
(1)Removal of bearing and retainer bush
R (a)Prepare milling and crimping device, P/N 98A55308403000, with the cutting tool and attach to a drilling machine.
(b)Mill carefully until flange of bearing retainer bush (3), which is crimped over retainer washer (1), is removed.
(c)Remove retainer washer (1).
(d)Press out and discard retainer bush (3), including bearing (2), using suitable tool.
(2)Preparation for installation
(a)Clean and degrease bush (4) in component bore with cleaning agent (Mat. No. 11-004).
(b)Visually inspect bush (4) in component bore for damage and condition.
(c)Clean and degrease new retainer bush (3) and retainer washer (1) with cleaning agent (Mat. No. 11-004).
(3)Installation of bearing and retainer bush
(a)Coat mating surfaces of bush (4) in component bore and retainer bush (3) with sealant (Mat. No. 09-013).
(b)Press retainer bush (3) into hinge arm and make sure that machined shoulder rests hard against housing.
(c)Remove excess sealant (Mat. No. 09-013) with clean, lint-free cloth.
(d)Install retainer washer (1) over bush protrusion and make sure that retainer washer rests on housing.
(e)Prepare milling and crimping device with crimping rollers and attach to drilling machine.

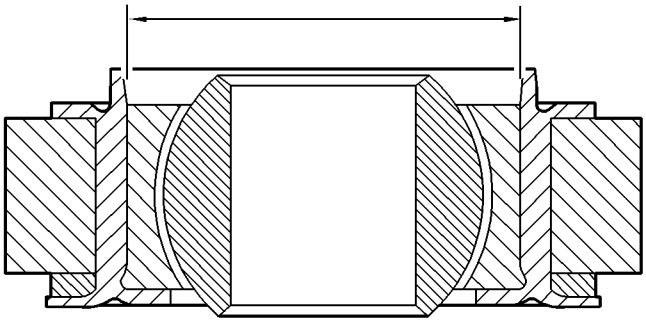


Milling and Crimping of Bearings
Figure 801

EXAMPLE OF BORING



DIA. OF BEARING + 0.002mm (0.0000079in.)
+ 0.010mm (0.0000399in.)



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Boring of Retainer Bush
Figure 802

(f)Crimp retainer bush (3) to retainer washer (1) using crimping rollers, with taper (showing outwards), for step 1 and parallel surfaces for step 2.
NOTE : Operate drilling machine at low speed.
1 Liberally coat crimping rollers and bush protrusion with silicone grease (Mat. No. 04-011).
2 Start crimping process using moderate pressure.
3 Gradually increase pressure until bush protrusion is completely crimped to retainer washer (1).
4 Remove excess silicone grease (Mat. No. 04-011).

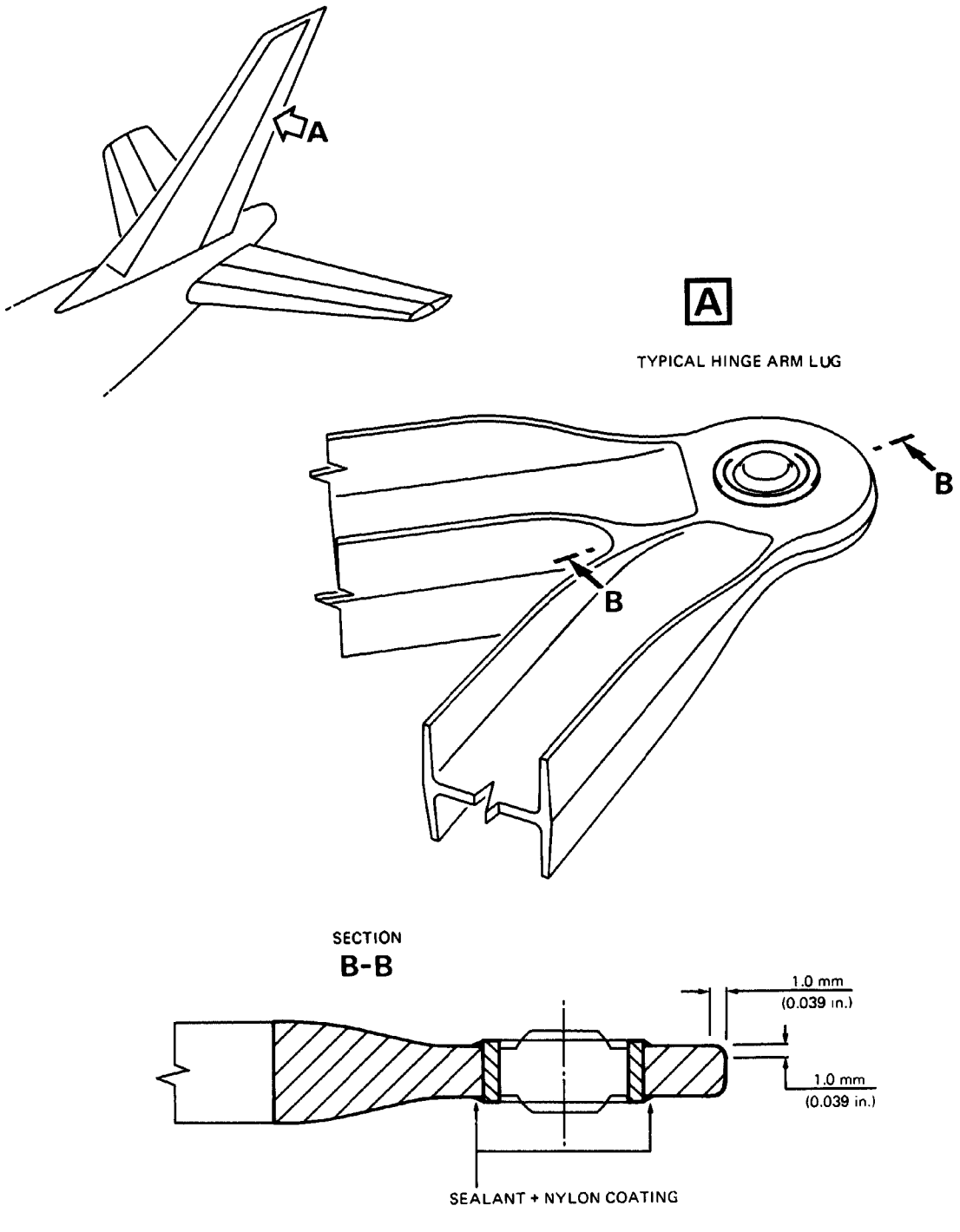
CAUTION :THE MEASUREMENT OF THE OUTER DIAMETER OF BEARINGS CAN BE DIFFERENT.

(g)Check measurement of the outer diameter of bearing.
(h)Open up the bore of retainer bush to the measurement of the outer diameter of the bearing with a clearance of 0.002 mm (0.000079 in) to 0.010 mm (0.000394 in) using a milling machine with a suitable tool.
(j)Deburr retainer bush carefully with emery cloth.
(k)Degrease bore of retainer bush (3) with cleaning agent (Mat. No. 11-004) and allow to dry.
(l)Lightly coat bore of retainer bush (3) with sealant (Mat. No. 09-013).
(m)Degrease outer surface of new bearing (2) with cleaning agent (Mat. No. 11-004) and allow to dry.
(n)Press bearing (2) into retainer bush (3) until bearing (2) rests against machined face of inner ring.
(o)Turn hinge arm over and crimp bush protrusion to bearing (2) using crimping rollers, with taper (showing inwards), for step 3 and parallel surfaces for step 4.
NOTE : Operate drilling machine at low speed.
1 Liberally coat crimping rollers and bush protrusion with silicone grease (Mat. No. 04-011).
2 Start crimping process using moderate pressure.
3 Gradually increase pressure until bush protrusion is completely crimped against bearing face.
4 Remove excess silicone grease (Mat. No. 04-011).
(p)Inspect crimped areas of retainer bush (3) for uniformity and absence of cracks, scratches or splintering.
(q)Protect crimped areas of retainer bush (3):
1 Cover bearing (2) to prevent ingress of cleaning agent and protection paint.
2 Clean and degrease retainer bush (3), retainer washer (1) and joints with cleaning agent (Mat. No. 11-004) and allow to dry.
3 Coat crimped areas with chemical conversion coating (Mat. No. 13-002) and dry with warm air dryer at approx. 50°C (122°F).
4 Apply primer coating (Mat. No. 16-006) to retainer bush (3), retainer washer (1) and joints, and dry with a warm air dryer at approx. 50°C (122°F).
5 Remove cover from bearing (2).
(r)Check effective retention of bearing (2) in hinge arm and that bear-

ing (2) rotates freely and smoothly.

C. Repair of Corroded Hinge Arms
(1)Repair of aluminum hinge arms:
(a)Remove corrosion by mechanical method (Ref. 51-74-10, P. Block 801).
(b)Check that extent of corrosion does not exceed limitations (Ref. 55-36-11, P. Block 601).
(c)Round all edges of hinge arms (Ref. Fig. 803).
(d)Mask off bonding strap hole.
(e)Neutralize corroded area (Ref. 51-74-10, P. Block 801).
(f)Apply chemical conversion coating (Mat. No. 13-002) to bare metal.
NOTE : If chemical conversion coating (Mat. No. 13-002) is not available, use wash primer (Mat. No. 16-020).
(2)Repair of steel hinge arms.
(a)Remove corrosion by sand blasting.
(b)Check that extent of corrosion does not exceed limitations (Ref. 55-36-11, P. Block 601).
(c)Round edges of hinge arms (Ref. Fig. 803).
(d)Mask off bonding strap hole and around repaired area.
WARNING : PHOSPHORIC SOLUTION (MAT. NO. 05-042) IS DANGEROUS.
(e)Apply phosphoric solution (Mat. No. 05-042) evenly and liberally with a brush or clean cheesecloth. Allow to penetrate for 5 to 15 minutes. Surface should appear grey-white. Repeat as necessary.
(f)Rinse with a clean cloth soaked in water and dry with hot air.
(3)Protection of hinge arms
(a)Apply epoxy primer (Mat. No. 16-006) or polyurethane primer (Mat. No. 16-001).
(b)Apply polyurethane topcoat (Mat. No. 16-002).
(c)Install bearings, if previously removed (Ref. Para. 3.B.).
(d)Apply sealant bead (Mat. No. 09-016) around bush (Ref. Fig. 803).
(e)Protect sealant bead with nylon coating (Mat. No. 16-003).
(f)Apply moisture-removing oil (Mat. No. 05-027) to hinge arms (Ref. 51-75-10, P. Block 801).
(g)Apply corrosion-preventive compound (Mat. No. 05-005) to lugs, bonding strap attachments and edges of crosshatched areas (Ref. 51-75-10, P. Block 801).
(h)Remove masking from repaired area and bonding holes.

D. Repair of Chafed Attach Fittings
NOTE : Should depth of chafing on flanges of attach fittings exceed 2.5 mm (0.1 in.), a structural repair must be carried out.
(1)Rework chafed area by deburring and smoothing sharp edges.
(2)Apply epoxy primer (Mat. No. 16-006) or polyurethane primer (Mat. No. 16-001).
(3)Apply polyurethane topcoat (Mat. No. 16-002).



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Hinge Arms
Figure 803

E. Approved Repairs on Vertical Stabilizer Attach Fittings
(Ref. Fig. 804, 805)

(1)Removal of bush

(a)Prepare milling and crimping device, P/N 98A55307626100 (Part of P/N 98A55307626000) with the cutting tool, for step 1, and install in bush (1).

(b)Mill carefully by hand until flange of bush (1), which is crimped over washer (2), is removed.

(c)Remove washer (2).

(d)Install suitable tool of P/N 98A55307626100 (Part of P/N 98A55307626000) for step 2.

(e)Press out and discard bush (2).

(2)Preparation for installation

(a)Visually inspect component bore for damage and condition.

(b)Clean and degrease new bush (1) and washer (2) with cleaning agent (Mat. No. 11-004).

(3)Installation of bush

(a)Install suitable tool of P/N 98A55307626100 (Part of P/N 98A55307626000) with bush (1) in attach fitting, for step 3.

(b)Press bush (1) into attach fitting and make certain that machined shoulder rests hard against housing.

(c)Install washer (2) over bush protrusion and make certain that washer (2) rests on housing.

NOTE : Washers (2) are available in several thicknesses because the thickness of the attach fittings depends on the production.

(d)Prepare milling and crimping device with crimping rollers, with taper (showing outwards) for step 4, and parallel surfaces for step 5.

(e)Install milling and crimping device in bush (1).

1 Liberally coat crimping rollers and bush protrusion with silicone grease (Mat. No. 04-011).

2 Start crimping process by hand using moderate pressure.

3 Gradually increase pressure until bush protrusion is completely crimped to washer (2).

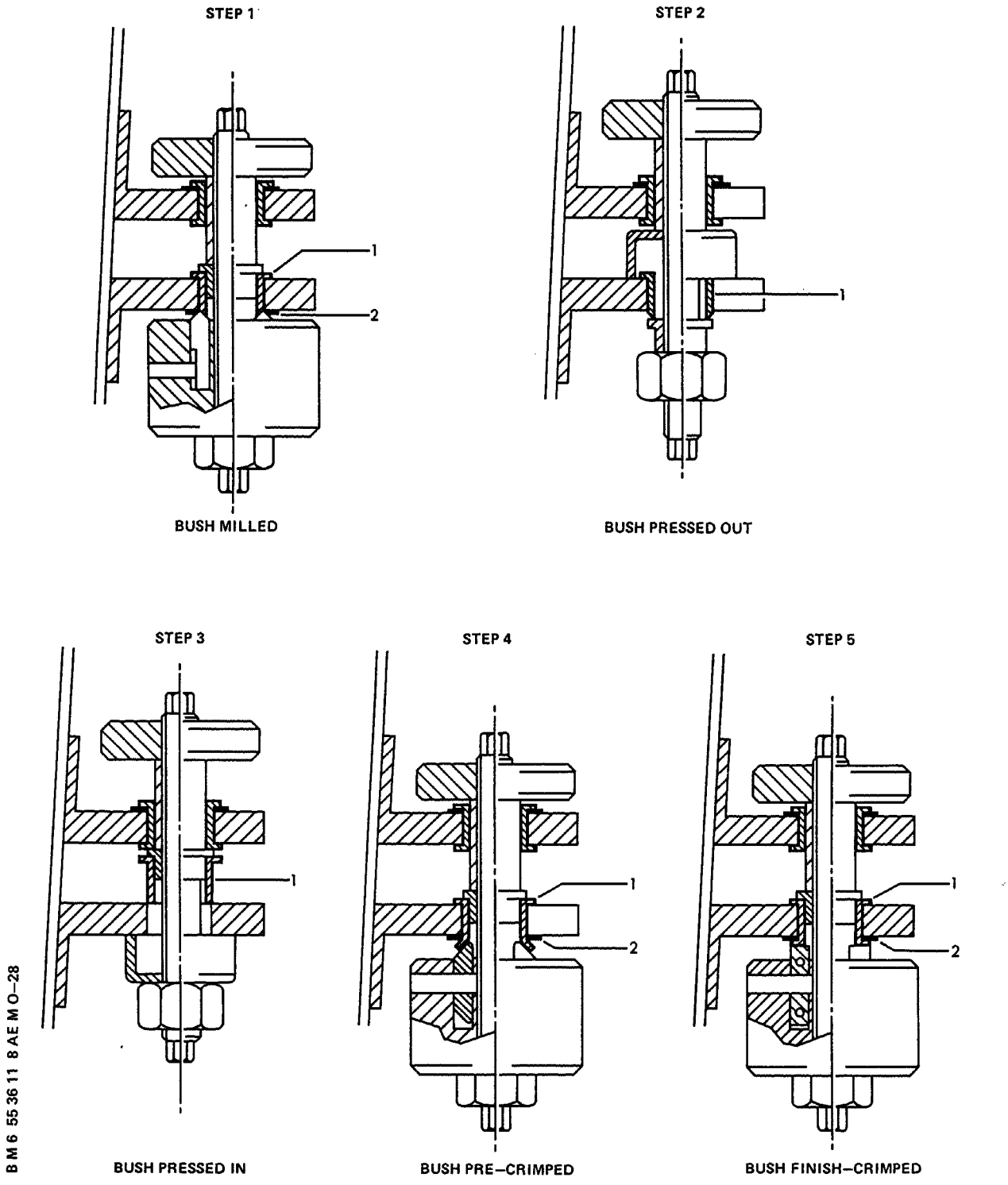
4 Remove excess silicone grease (Mat. No. 04-011).

(f)Degrease bore of bush (1) and crimped area with cleaning agent (Mat. No. 11-004).

(g)Inspect crimped area of bush (1) for uniformity and absence of cracks, scratches or splintering.

(h)Apply sealant bead (Mat. No. 09-016) around bush (1) (Ref. Fig. 806).

(j)Protect sealant bead with nylon coating (Mat. No. 16-003).



Milling and Crimping of Bushes for
Attach Fittings 1, 5, 6 and 7
Figure 804

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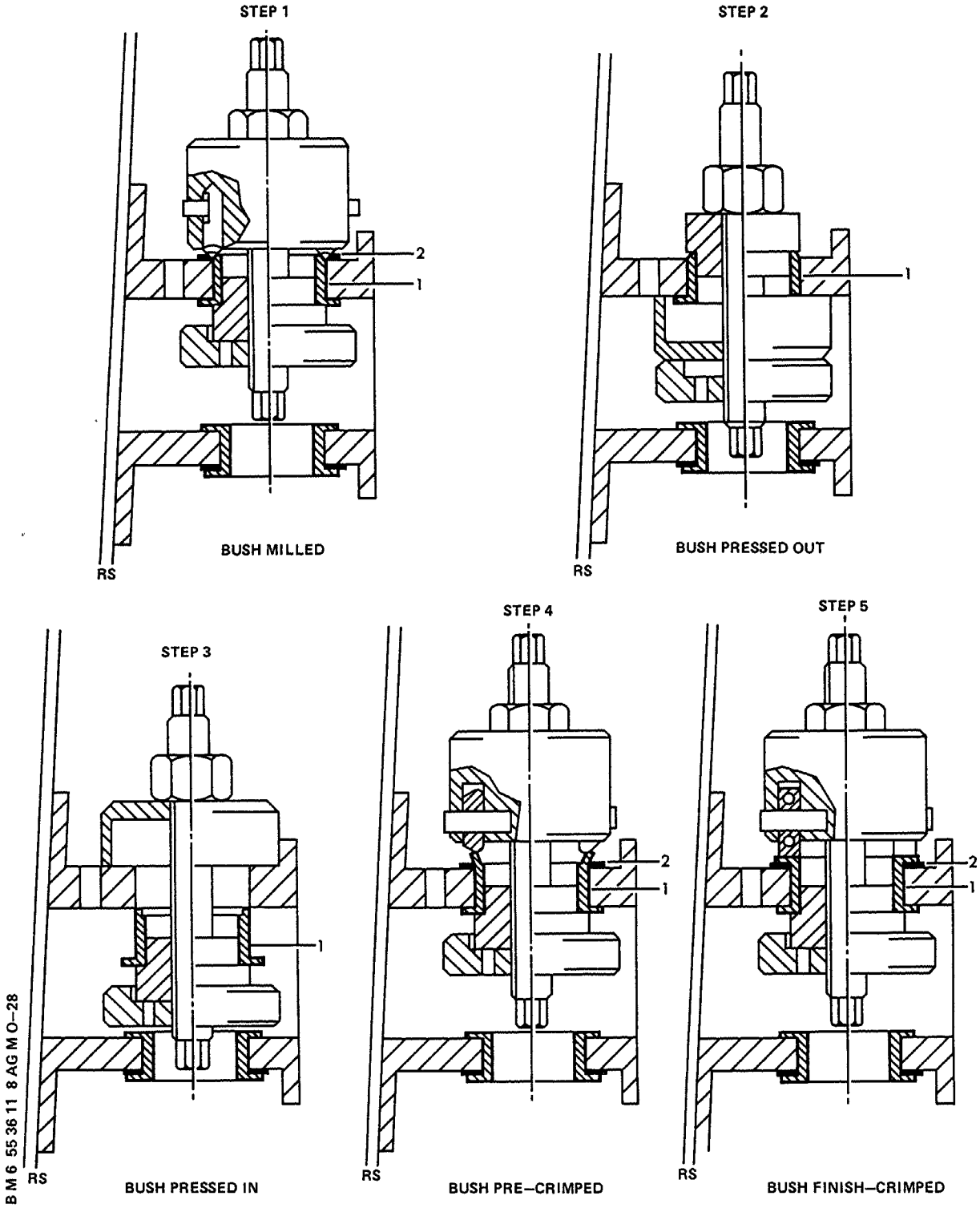
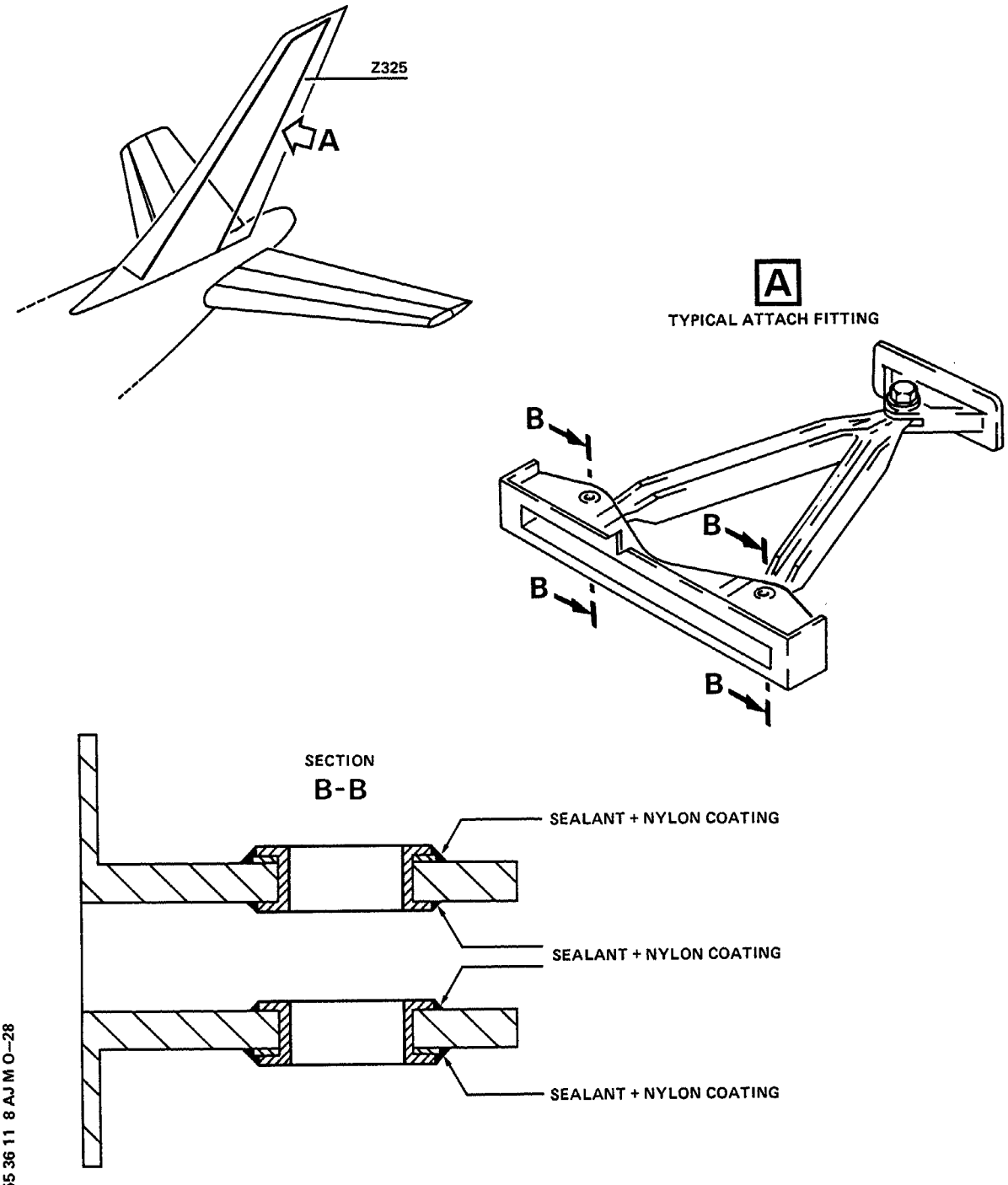


Milling and Crimping of Bushes for
Attach Fittings 2, 3 and 4
Figure 805



Attach Fittings
Figure 806

F. Close-Up
(1)Install rudder hinge arms if removed (Ref. 55-36-43, P. Block 401, 55-36-44, P. Block 401, 55-36-45, P. Block 401, 55-36-46, P. Block 401, 55-36-47, P. Block 401).
(2)Make certain working area is clean and clear of tools and miscellaneous items of equipment.
(3)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(4)Remove access platform.

VERTICAL STABILIZER ATTACH FITTINGS - APPROVED REPAIRS

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Reason for the Job

A. Bearing replacement on rudder hinge arms

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 5.5 - 14.5 m (18 - 48 ft.)
B. 98A55308295000	Device - Milling and Crimping Rudder Bearings
C. 98AMS172344000	Wrench - Hooked
D. 98AMS172333000	Wrench - Hooked
E.	Protective Gloves
F.	Protective Goggles
G.	Protective Clothing
H.	Brush
J.	Cheesecloth
K.	Masking Tape
L.	Clean, Lint-Free Cloth
M.	Warm Air Dryer
N. Material No. 04-011	Common Greases (Ref. 20-31-00)
P. Material No. 05-005	Special Materials (Ref. 20-31-00)
Q. Material No. 05-027	Special Materials (Ref. 20-31-00)
R. Material No. 05-042	Special Materials (Ref. 20-31-00)
S. Material No. 09-013	Sealants (Ref. 20-31-00)
T. Material No. 09-016	Sealants (Ref. 20-31-00)
U. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
V. Material No. 13-002	Pretreatment for Painting (Ref. 20-31-00)
W. Material No. 16-001	Structure Paints (Ref. 20-31-00)
X. Material No. 16-002	Structure Paints (Ref. 20-31-00)
Y. Material No. 16-003	Structure Paints (Ref. 20-31-00)
Z. Material No. 16-006	Structure Paints (Ref. 20-31-00)
AA.Material No. 16-020	Structure Paints (Ref. 20-31-00)

Referenced Procedures

- 27-21-21, P. Block 401	Removal/Installation of Rudder
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-36-11, P. Block 601	Vertical Stabilizer Attach Fittings

3. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove rudder (Ref. 27-21-21, P. Block 401).
(4)If corrosion is found or paint coating is damaged near a bearing, remove bearing.
(5)Carefully mask off bearings that remain in place to prevent ingress of foreign material.
(6)Keep new bearings covered until installation step to prevent ingress of foreign material.

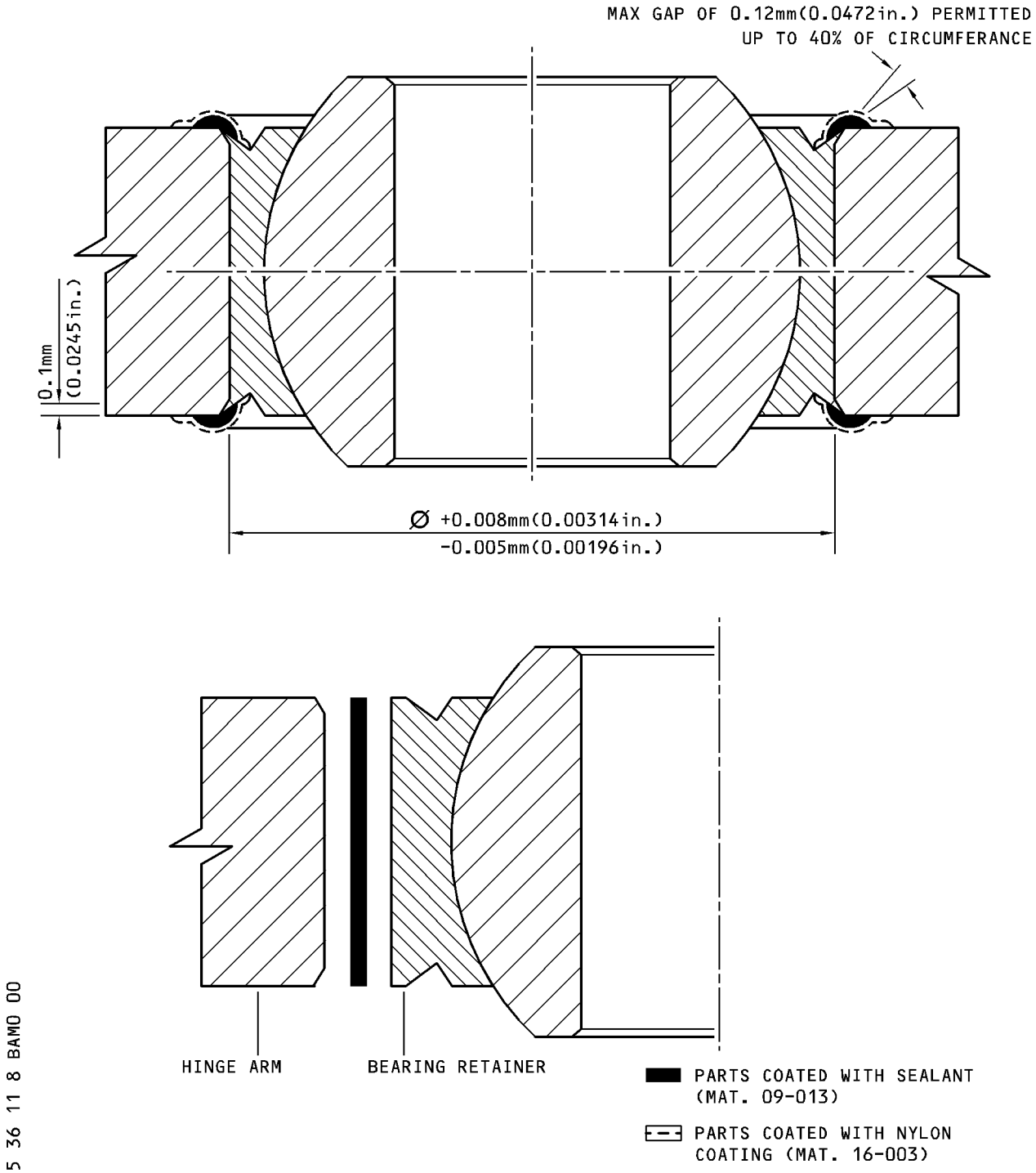
B. Approved Repairs on Rudder Hinge Arm Bearings (Ref. Fig. 801, 802)
(1)Removal of bearing
(a)Prepare milling and crimping device, P/N 98A55308295000 with the cutting tool and attach to the bearing (1).
(b)Mill carefully until flange of bearing retainer is removed.
(c)Press out and discard bearing (1), using suitable tool.
(2)Preparation for installation
(a)Clean and degrease component bore (2) with cleaning agent (Mat. No. 11-004).
(b)Check measurement of bearing (1) outer diameter.
(c)Check measurement of component bore (2) diameter.

CAUTION : REPLACE HINGE ARM FITTING, IF THE DIAMETER OF THE COMPONENT BORE IS OUT OF MEASUREMENT.

(d)If necessary rework component bore (2) using a reamer.
(e)Deburr component bore (2) carefully using emery cloth.

CAUTION : AVOID INGRESS OF CLEANING AGENT BETWEEN BEARING AND BEARING RETAINER.

(f)Clean mating surface of component bore (2) and bearing (1) with cleaning agent (Mat. No. 11-004) using a lint-free cloth.
(3)Installation of bearing
(a)Coat mating surfaces of component bore (2) and bearing retainer (1) with sealant (Mat. No. 09-013).
(b)Press bearing (1) into hinge arm fitting and make certain that bearing retainer is flush with the surface of the hinge fitting.
(c)Remove excess sealant (Mat. No. 09-013) with clean, lint-free cloth.



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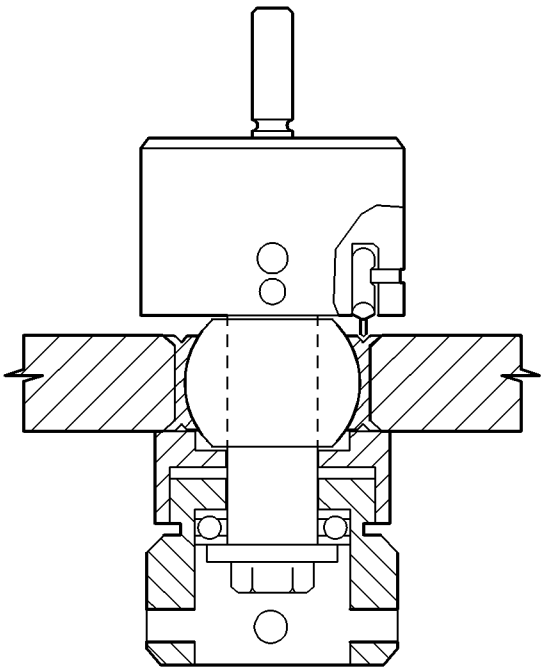
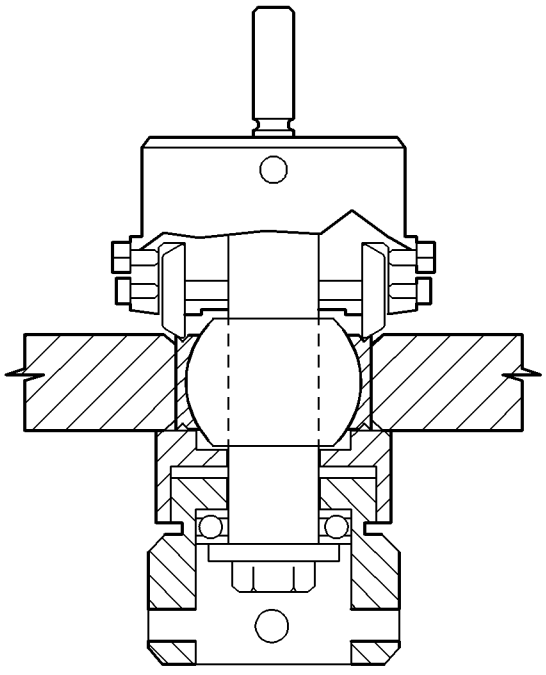
Position and Measurement of Bearings
Figure 801

MILLING OPERATION



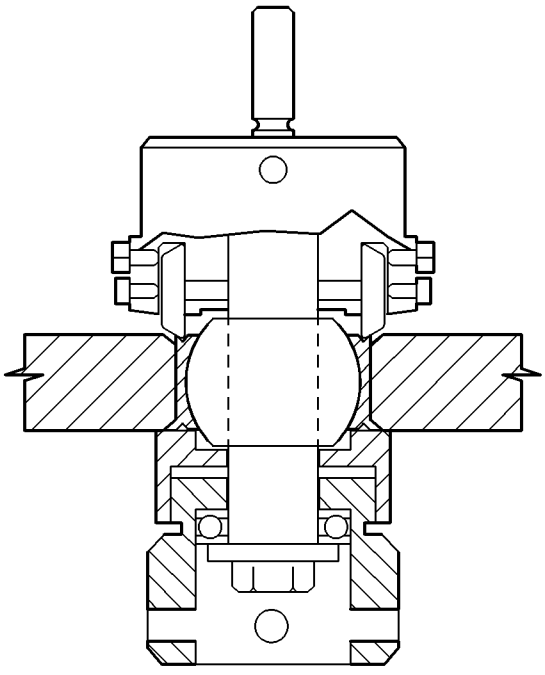
CRIMPING OPERATION

STEP 1



CRIMPING OPERATION

STEP 2



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Milling and Crimping of Bearings
Figure 802

(d)Prepare milling and crimping device with crimping rollers and install in bearing (1).

(e)Crimp bearing retainer to component bore (2) using crimping rollers, with taper (showing outwards), for step 1 and parallel surfaces for step 2.

NOTE : Operate with low speed.

1 Liberally coat crimping rollers and bearing retainer protrusion with silicon grease (Mat. No. 04-011).

2 Start crimping process using moderate pressure.

3 Gradually increase pressure until bearing retainer protrusion is completely crimped to the component bore (2).

4 Remove excess silicone grease (Mat. No. 04-011).

5 Clean crimped area with a dry and lint-free cloth.

(f)Inspect crimped areas of bearing retainer for uniformity and absence of cracks, scratches or splintering.

(g)Protect crimped areas of bearing retainer .

1 Cover bearing (1) to prevent ingress of cleaning agent and protection paint.

2 Clean and degrease bearing retainer and bush with cleaning agent (Mat. No. 11-004) and allow to dry.

R

R

3 Apply primer coating (Mat. No. 16-006) to bearing retainer (1) and bush, and dry with a warm air dryer at approx. 50°C (122°F).

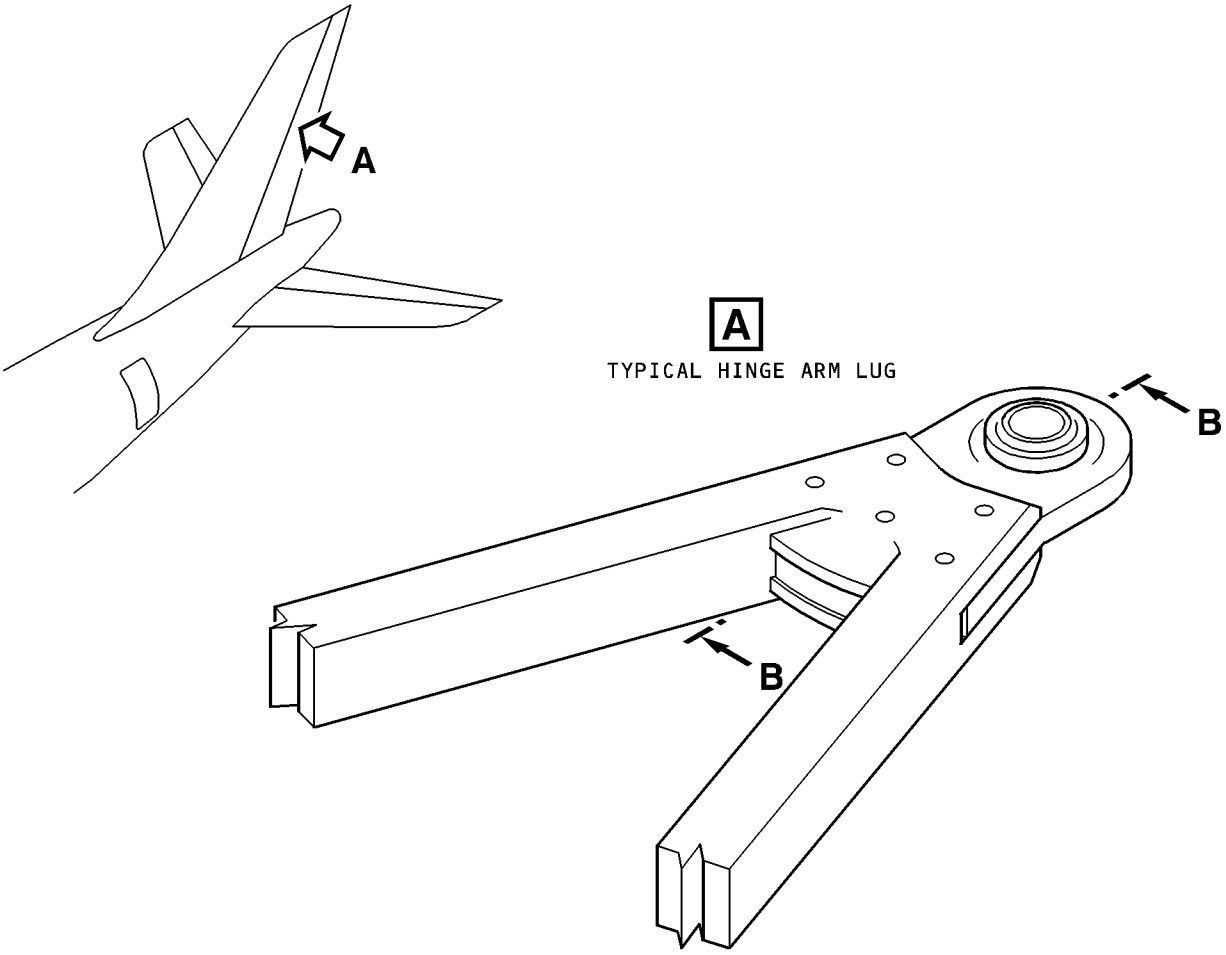
4 Remove cover from bearing (1).

(h)Check effective retention of bearing (1) in hinge arm and that bearing (1) rotates freely and smoothly.

C. Repair of Corroded Hinge Arms
(1)Repair of aluminum hinge arms
(a)Remove corrosion by mechanical method (Ref. 51-74-10, P. Block 801).
(b)Check that extent of corrosion does not exceed limitations (Ref. 55-36-11, P. Block 601).
(c)Round all edges of hinge arms (Ref. Fig. 803).
(d)Mask off bonding strap hole.
(e)Neutralize corroded area (Ref. 51-74-10, P. Block 801).
(f)Apply chemical conversion coating (Mat. No. 13-002) to bare metal.
NOTE : If chemical conversion coating (Mat. No. 13-002) is not available, use wash primer (Mat. No. 16-020).
(3)Protection of hinge arms
(a)Apply epoxy primer (Mat. No. 16-006) or polyurethane primer (Mat. No. 16-001).
(b)Apply polyurethane topcoat (Mat. No. 16-002).
(c)Install bearings, if previously removed (Ref. Para. 3.B.).
(d)Apply sealant bead (Mat. No. 09-016) around bush (Ref. Fig. 803).
(e)Protect sealant bead with nylon coating (Mat. No. 16-003).
(f)Apply moisture-removing oil (Mat. No. 05-027) to hinge arms (Ref. 51-75-10, P. Block 801).
(g)Apply corrosion-preventive compound (Mat. No. 05-005) to lugs, bonding strap attachments and edges of crosshatched areas (Ref. 51-75-10, P. Block 801).
(h)Remove masking from repaired area and bonding holes.

D. Repair of Chafed Attach Fittings
NOTE : Should depth of chafing on flanges of attach fittings exceed 2.5 mm (0.1 in.), a structural repair must be carried out.
(1)Rework chafed area by deburring and smoothing sharp edges.
(2)Apply epoxy primer (Mat. No. 16-006) or polyurethane primer (Mat. No. 16-001).
(3)Apply polyurethane topcoat (Mat. No. 16-002).

E. Close-Up
(1)Install rudder (Ref. 27-21-21, P. Block 401,
(2)Make certain working area is clean and clear of tools and miscellaneous items of equipment.
(3)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(4)Remove access platform.



Hinge Arms
Figure 803

VERTICAL STABILIZER SPLIT SLEEVES AND TAPERED ATTACH BOLTS INSPECTION/CHECK

NOTE: This inspection/check should be carried out during removal/installation of the vertical stabilizer.

1. Split Sleeves and Tapered Attach Bolts - General Check

A. Reasons for the Job
(1)Visual inspection to make certain that components are free from damage.
(2)Measurement of fits and clearances to make certain that components are free from excessive wear.

B. Referenced Procedures

-	51-73-10, P. Block 801	Repair of Minor Damage
-	51-74-10, P. Block 801	Removal of Corrosion
-	51-75-10, P. Block 801	Repair of Paint Coatings
R -	55-30-11, P. Block 401	Vertical Stabilizer Spar Box
-	55-36-39, P. Block 801	Vertical Stabilizer Transverse Load Fittings
		Nondestructive Testing Manual (NTM)

C. Procedure
(1)Visual Inspection of Split Sleeves, Tapered Attach Bolts, Bushes and Fittings (Ref. Fig. 601).
NOTE : Should crack formation be suspected during the following inspection/check, an approved nondestructive test must be carried out. If a crack is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.
(a)Inspect split sleeves (4) and tapered attach bolts (5) for:
1 Scratches. Scratches in the bronze coating can be polished out with fine emery cloth.
2 Flaking. Flaking of bronze coating up to 6% of surface area is permissible. Affected components must be rotated so that damaged area does not support vertical loads. If damage exceeds 6% of surface area, item must be replaced.
(b)Inspect bushes (2, 9, 7) in transverse load fittings (8, 10), main attach fittings (1), frame fittings (3) and bearings (6) in transverse load fittings (8) for:
1 Secure seating.
2 Satisfactory surface.
3 Flush fit.
4 If play is found or surface damage is observed, component must be replaced (Ref. 55-36-39, P. Block 801).
(c)Inspect transverse load fittings (8, 10), forked links (12), main attach fittings (1) and frame fittings (3) for:
1 Cracks. If cracks be suspected an approved nondestructive test must be carried out.
2 Distortion. If distortion is detected, component must be replaced.
3 Scratches (Ref. 51-73-10, P. Block 801).
4 Corrosion (Ref. 51-74-10, P. Block 801).
5 Damage to paint finish (Ref. 51-75-10, P. Block 801).

(2)Measurement of Fits and Clearances (Ref. Fig. 601).
(a)Measure fits and clearances of bolts (11), bushes (2, 9) and split sleeves (4), in accordance with the following table.

Fits and Clearances

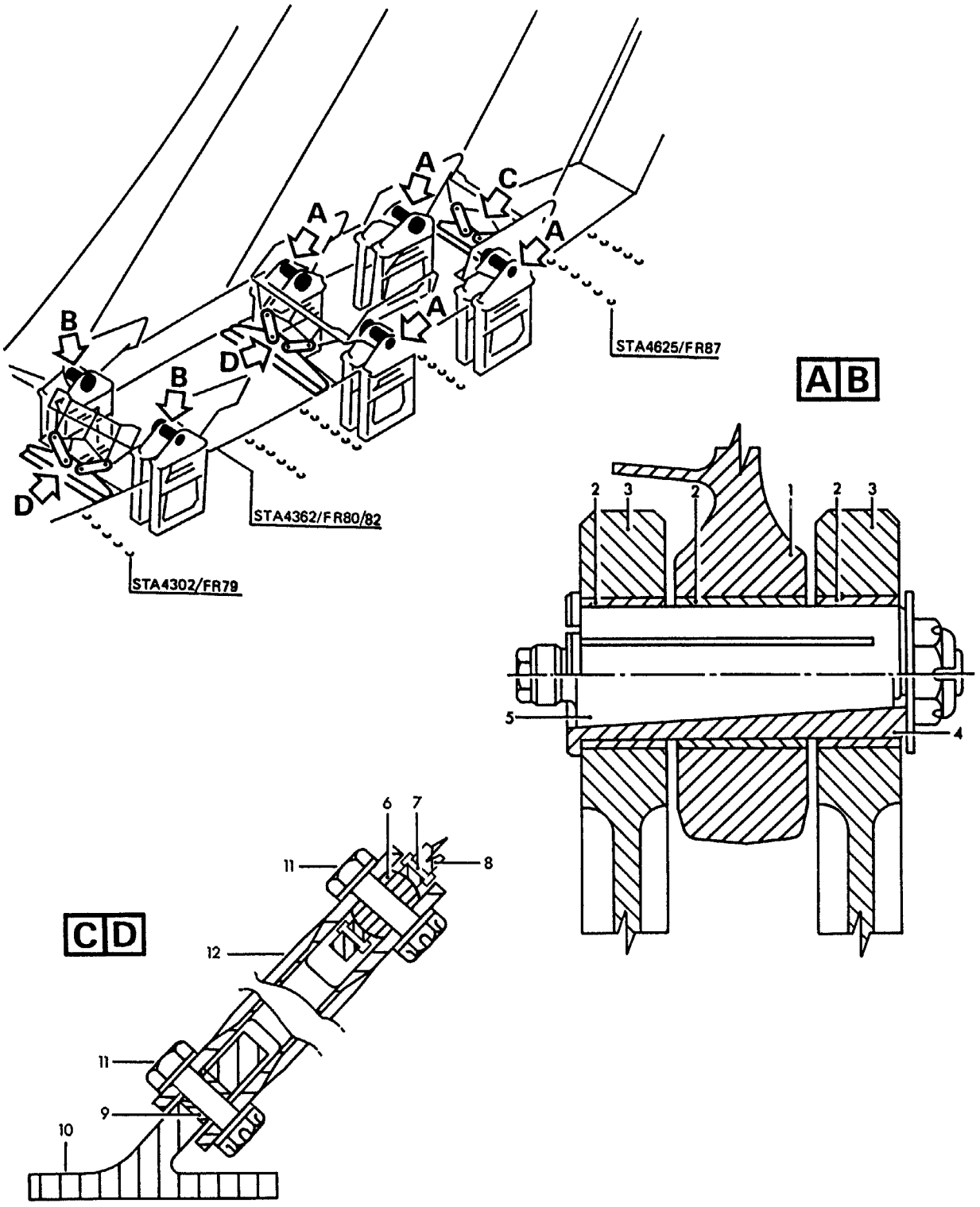
Detail and Item No.	Original Mfg Limits				In-Service Wear Limits		
	Dimension mm (in.)		Assy. Clearance mm (in.)		Dimension Limits mm (in.)		Max. Allow. Clear. mm (in.)
	Min.	Max.	Min.	Max.	Min.	Max.	
A ID2	60.000 (2.3622)	60.030 (2.3634)			60.030 (2.3634)	60.230 (2.3713)	
			0.000 (0.0000)	0.060 (0.0024)			0.460 (0.0181)
A OD4	59.970 (2.3610)	60.000 (2.3622)			59.770 (2.3531)	59.970 (2.3610)	
B ID2	50.000 (1.9685)	50.025 (1.9695)			50.025 (1.9695)	50.225 (1.9774)	
			0.000 (0.0000)	0.050 (0.0020)			0.450 (0.0177)
B OD4	49.975 (1.9675)	50.000 (1.9685)			49.775 (1.9596)	49.975 (1.9675)	
C ID9	14.274 (0.5620)	14.286 (0.5624)			14.286 (0.5624)	14.306 (0.5632)	
			0.000 (0.0000)	0.034 (0.0013)			0.074 (0.0029)
C OD11	14.252 (0.5611)	14.270 (0.5618)			14.232 (0.5603)	14.252 (0.5611)	
D ID9	11.100 (0.4370)	11.111 (0.4374)			11.111 (0.4374)	11.131 (0.4382)	
			0.000 (0.0000)	0.029 (0.0011)			0.069 (0.0027)
D OD11	11.082 (0.4363)	11.100 (0.4370)			11.062 (0.4355)	11.082 (0.4363)	

Table 601

(3)Close-Up
(a)Make certain that working area is clean, and clear of tools and miscellaneous items of equipment.

R 2. Tapered Attach Bolts - Correct Alignment of the Torque Marks

R A. Reason for the Job
R Refer to MPD Task 531932-01-1.



Measurement of Fits and Clearances
Figure 601

(1)Inspection for Rotation of the Tapered Attach Bolts.

B. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform
B.	Torque Wrench, up to 50 m.daN (369 lbf.ft.)
C.	Cotter Pins
D. Material No. 04-018	Common Greases (Ref. 20-31-00)

C. Referenced Procedures

- 53-10-69, P. Block 401	Vertical Stabilizers Side Fairings - Removal/ Installation
- 55-00-00, P. Block 301	Stabilizers - Standard Warning and Procedures
- 55-30-11, P. Block 401	Vertical Stabilizer Spar Box - Removal/ Installation

D. Procedure

(1)Job Set-Up

(a)Make the horizontal and the vertical stabilizer safe (Ref. 55-00-00, P. Block 301).

(b)Position access platform.

(c)Remove LH and RH Vertical Stabilizer Side Fairings (Ref. 53-10-69, P. Block 401).

(2)Inspect the red paint witness marks at each of the six tapered bolt assemblies for correct alignment.

NOTE : If you find no rotation, no further action is necessary.

(Ref. Fig. 602)

R (3)In case of rotation of any of the tapered bolt assemblies and providing that the cotter pin (58) is correctly fitted, perform the following further inspection:

NOTE : Torque check procedure must be performed in the tightening direction. Any breakaway torque obtained while un-tightening is irrelevant.

R CAUTION : IF SEVERAL ROTATED TAPERED BOLT ASSEMBLIES HAVE TO BE REMOVED,
R IT IS ALLOWED TO REMOVE/INSTALL ONLY ONE TAPERED BOLT ASSEMBLY
R AT A TIME WITHOUT SUPPORTING THE VERTICAL STABILIZER WITH A
R SLING.

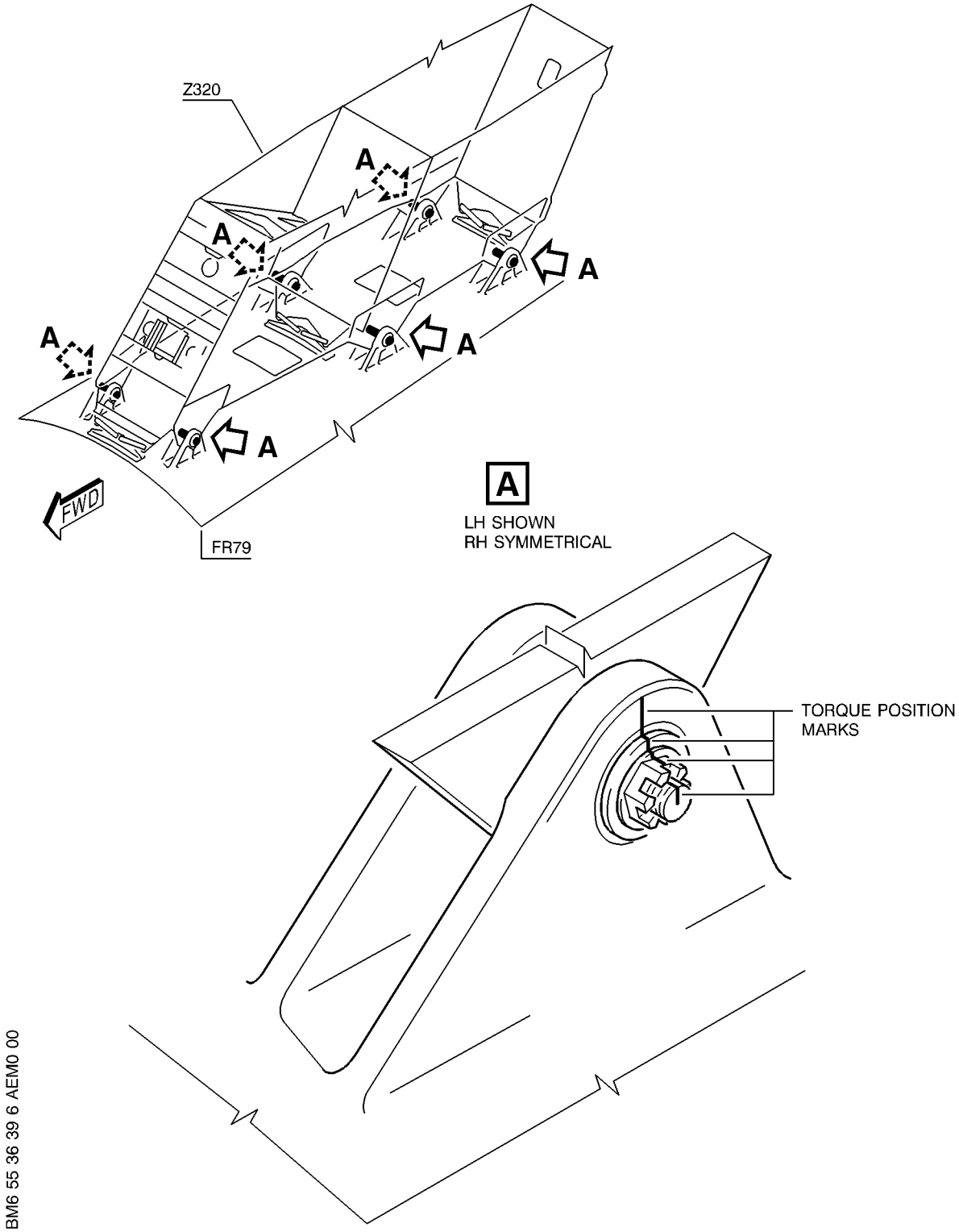
(a)Check of the torque value:

1 Remove the cotter pin (58).

2 Remove the red paint witness mark.

3 Check that the torque value is still greater than 30 m.daN. (221.3 lbf.ft.).

(b)Check of the installation position.



Torque Position Marks
Figure 602

R

(Ref. Fig. 603)

1 Check that gap 'b' is 2.0 ± 1.5 mm (0.078 ± 0.059 in.) between fuselage frame fitting (57) and washer (60).

2 Measure depth 'a' between end face of tapered attach bolt (62) and end face of split sleeve (61).

3 Check that depth 'a' is 2.0 + 4.0 mm - 0 mm (0.078 + 0.160 - 0 in.) CTR and AFT connections and 2.0 + 3.5 mm - 0 mm (0.078 + 0.160-0 in.) for the FWD connection.

(c)If all parts are secured and blocked in the correct position:

1 Lock the nut (59) with a new cotter pin (58).

2 Apply new red paint on the washers (60), the nuts (59), the thread bolt end (62) and the frame fitting (57).
(Ref. Fig. 602)

(4)If the dimensions 'a' and/or 'b' are out of limits and/or if the torque value is less than the required 30 m.daN (221.3 lbf.ft.), apply the following corrective action (one bolt at a time):

(a)If dimension 'b' is out of limits:

1 Remove the tapered assembly (Ref. 55-30-11, P. Block 401).

2 Inspect the split sleeves (61), the tapered attach bolts (62) and the bushes (63) as given in para. 1.

3 Measure fits and clearance of bushes (63) and split sleeves (61) in accordance with the Table 601 in para. 1.C.

4 If no damage is found, install the tapered assembly again (Ref. 55-30-11, P. Block 401).

5 In case of damage, contact AIRBUS immediately and send detailed inspection report.

(b)If dimension 'a' is out of limits:

1 Remove the tapered assembly (Ref. 55-30-11, P. Block 401).

2 Inspect the split sleeves (61), the tapered attach bolts (62) and the bushes (63) as given in para. 1.

3 Measure fits and clearance of bushes (63) and split sleeves (61) in accordance with the Table 601 in para. 1.C.

4 If bushes (63) are not damaged, inner diameter within tolerances, and are correctly installed, install a new tapered assembly (Ref. 55-30-11, P. Block 401).

5 In case of damage, contact AIRBUS immediately and send detailed inspection report.

(c)If dimension 'a' and 'b' are within tolerances but the torque value is below limit:

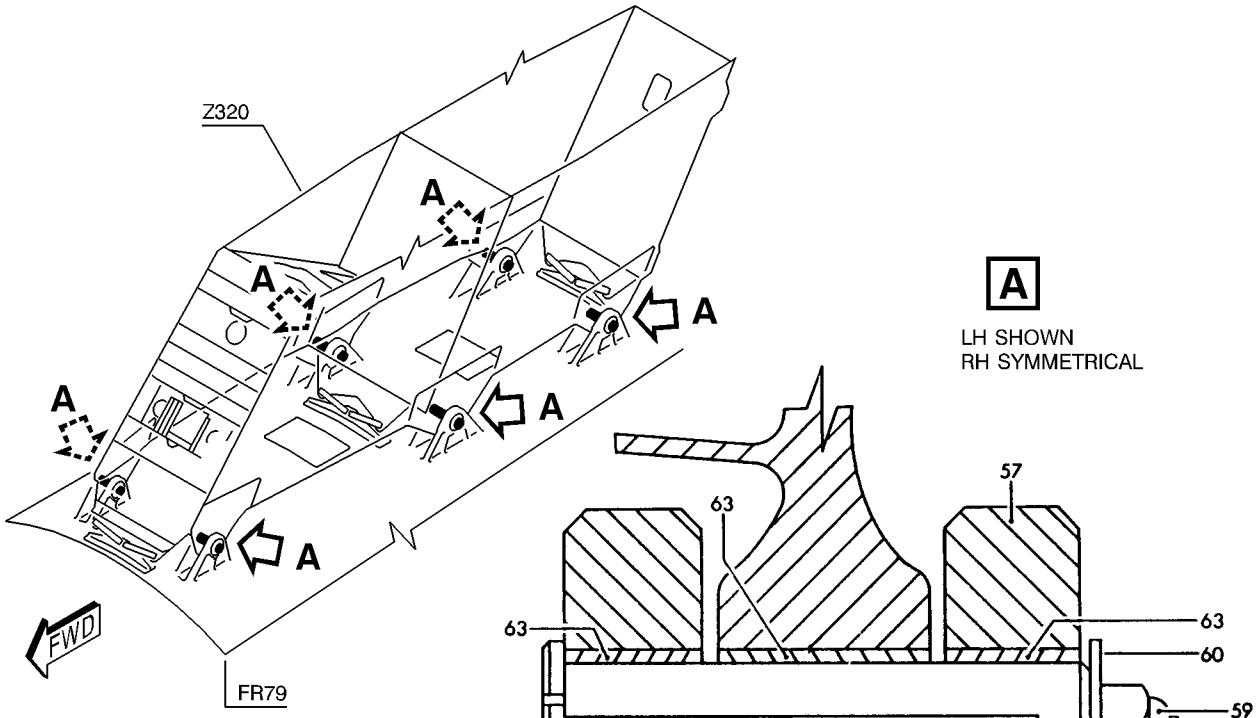
1 Remove and reinstall the tapered assembly (Ref. 55-30-11, P. Block 401).

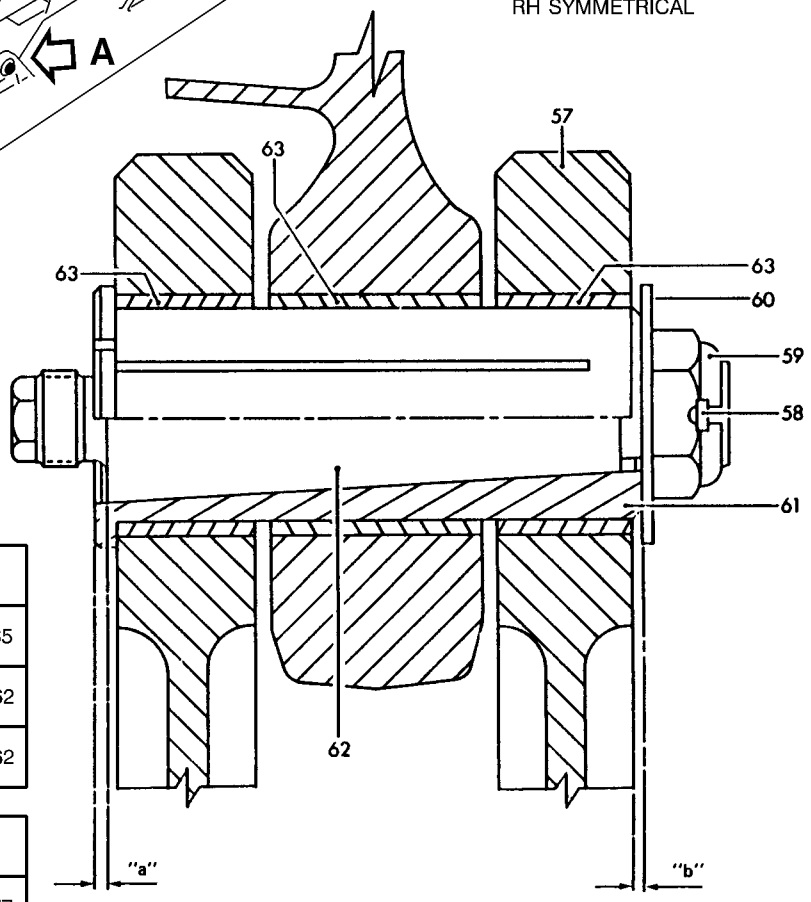
NOTE : Only do this step if a bolt rotation occurs again after a previous corrective action. A corrective action by a re-torque of the nut should be performed only one time.

2 Remove the old grease from the nut (59), the washer (60) and the bolt thread (62).

3 Apply grease (Mat. No. 04-018) to the thread of the bolt (62) and the mating surfaces of the nuts (59).

4 Install original washer (60) and nut (59) on the bolt (62).





"a"	min		max	
	mm	in.	mm	in.
FWD	2,0	0.0787	5,5	0.2165
CTR	2,0	0.0787	6,0	0.2362
AFT	2,0	0.0787	6,0	0.2362

"b"	min		max	
	mm	in.	mm	in.
FWD	0,5	0.0196	3,5	0.1377
CTR	0,5	0.0196	3,5	0.1377
AFT	0,5	0.0196	3,5	0.1377

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Fitting - Gaps
Figure 603

5 TORQUE the nut (59) as follows:
- TORQUE the nut (59) to 40 m.daN (295 lbf.ft.).
- Wait 10 minutes for grease to squeeze out.
- TORQUE the nut (59) again to 40 m.daN (295 lb.ft.).
- Back off nut (59) maintaining a residual torque of between 10 and 20 m.daN (73.8 and 147.5 lbf.ft.).
- TORQUE the nut (59) to between 30 and 35 m.daN (221.3 and 258.2 lbf.ft.) to align cotter pin hole.

6 Safety the nut (59) with a new cotter pin (58).

NOTE : If it is not possible to install the cotter pin within the torque range (30 to 35 m.daN) (221.3 and 258.2 lbf.ft.), use a washer of different thickness (or two washers maximum) and perform the torque sequence again until the cotter pin can be installed correctly.

7 Make sure that the dimensions 'a' and 'b' are in limit. If the dimensions are out of limit, refer to para. (a) and/or (b).

8 Apply new red paint on the washers (60), the nuts (59), the thread bolt end (62) and the frame fitting (57).

(5)Close-Up
(a)Make sure that the work area is clean.
(b)Install LH and RH side fairings (Ref. 53-10-69, P. Block 401).
(c)Make sure that the work area is clean and clear of tools and miscellaneous items of equipment.
(d)Return horizontal and vertical stabilizer to operating condition (Ref. 55-00-00, P. Block 301).
(e)Remove access platform.

R

VERTICAL STABILIZER TRANSVERSE LOAD FITTINGS
APPROVED REPAIRS

NOTE : These approved repairs should be carried out during removal/ installation of the vertical stabilizer.

1. Reason for the Job

A. Bearing and retainer bush replacement on transverse load fittings

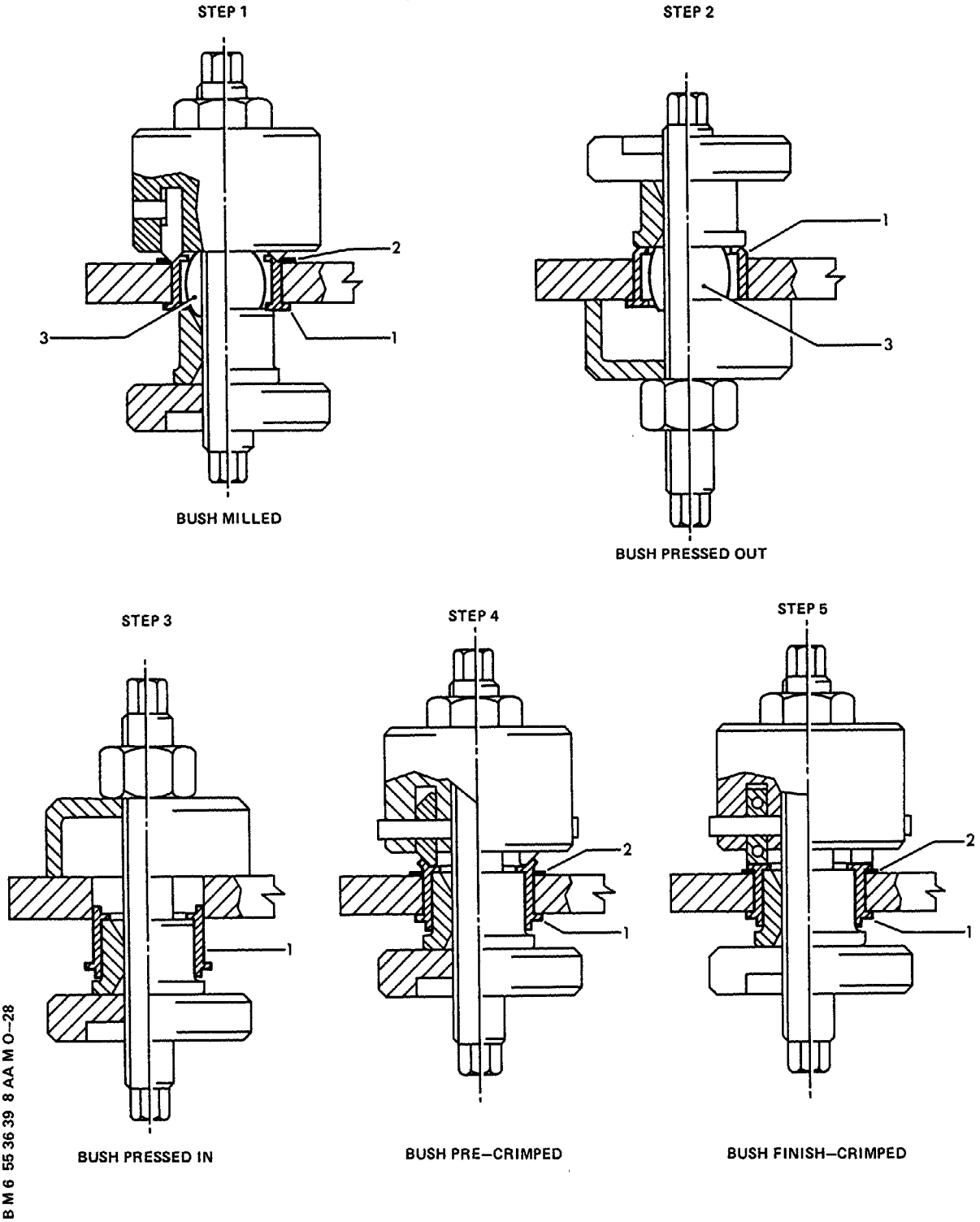
2. Equipment and Materials

ITEM	DESIGNATION
A. 98A55307626000	Device - Milling and Crimping
B.	Clean, Lint-Free Cloth
C. Material No. 04-001	Common Greases (Ref. 20-31-00)
D. Material No. 04-011	Common Greases (Ref. 20-31-00)
E. Material No. 09-016	Sealants (Ref. 20-31-00)
F. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
G. Material No. 16-003	Structure Paints (Ref. 20-31-00)
Referenced Procedure	
- 51-75-10, P. Block 801	Repair of Paint Coatings

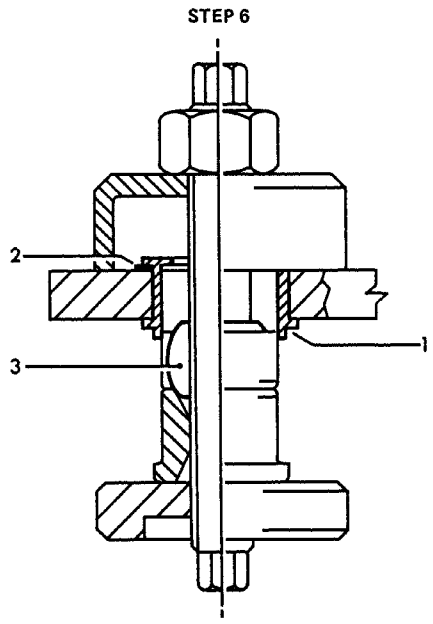
3. Procedure

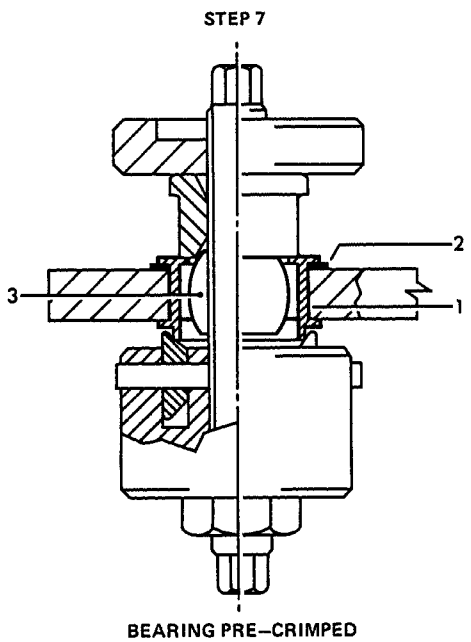
A. Job Set-Up
(1)If play or corrosion is found on a bearing, remove bearing.

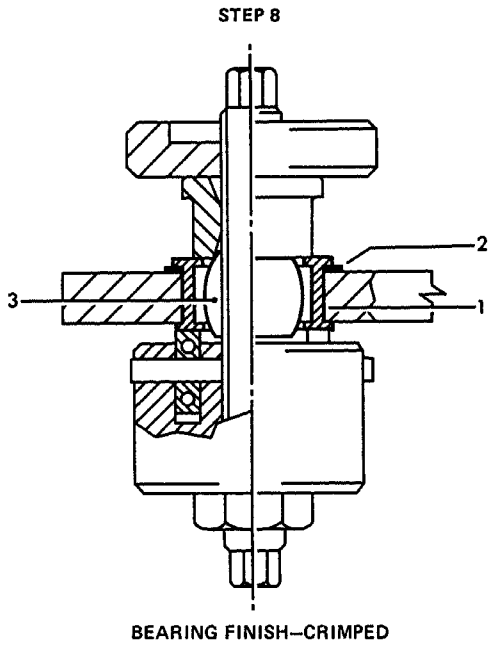
B. Approved Repairs (Ref. Fig. 801, 802, 803)
(1)Removal of bearing and retainer bush
(a)Prepare milling and crimping device, P/N 98A55307626400 (part of P/N 98A55307626000) for forward and mid bearings, and P/N 98A55307626500 (part of P/N 98A55307626000) for aft bearings, for step 1.
(b)Mill carefully by hand until flange of bearing retainer bush (1), which is crimped over washer (2), is removed.
(c)Remove washer (2).
(d)Install suitable tool P/N 98A55307626000, for step 2.
(e)Press out and discard retainer bush (1), including bearing (3).
(2)Preparation for installation
(a)Visually inspect component bore for damage and condition.
(b)Clean and degrease new retainer bush (1) and washer (2) with cleaning agent (Mat. No. 11-004).
(c)On metal vertical stabilizer, check condition of paint coating near component bore.
1 Repair paint coating if necessary (Ref. 51-75-10, P. Block 801).
(3)Installation of bearing and retainer bush
(a)Install suitable tool of P/N 98A55307626000, for step 3.
(b)Press retainer bush (1) into transverse load fitting and make certain that machined shoulder rests hard against housing.
(c)Install washer (2) over bush protrusion and make certain that washer rests on housing.
(d)Prepare milling and crimping device with crimping rollers, with taper (showing outwards) for step 4, and parallel surfaces for step 5.
(e)Install milling and crimping device in retainer bush.
1 Liberally coat crimping rollers and bush protrusion with silicone grease (Mat. No. 04-011).
2 Start crimping process using moderate pressure.
3 Gradually increase pressure until bush protrusion is completely crimped to washer (2).
4 Remove excess silicone grease (Mat. No. 04-011).
(f)Degrease bore of retainer bush (1) and crimped area with cleaning agent (Mat. No. 11-004) and allow to dry.
(g)Lightly coat bore of retainer bush (1) with grease (Mat. No. 04-001).
(h)Degrease outer surface of new bearing (3) with cleaning agent (Mat. No. 11-004) and allow to dry.
(j)Install suitable tool of P/N 98A55307626000, for step 6.
(k)Press bearing (3) into retainer bush (1) until bearing (3) rests against machined face of inner ring.



Milling and Crimping of Bushes
Figure 801







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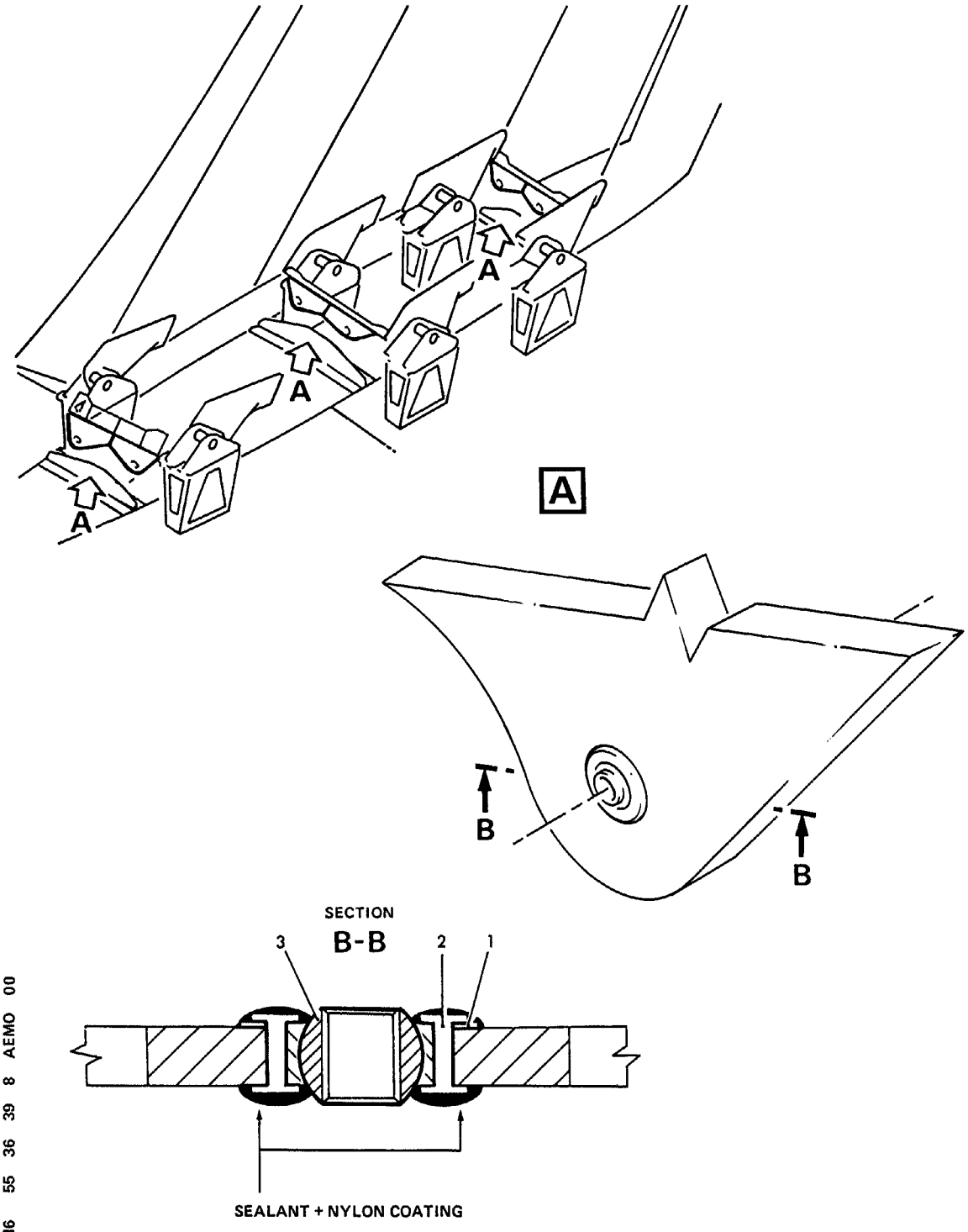
Crimping of Bearings
Figure 802



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Protection of Crimped Area
Figure 803

(l)Prepare milling and crimping device with crimping rollers, with taper (showing inwards) for step 7, and parallel surfaces for step 8.
1 Liberally coat crimping rollers and bush protrusion with silicone grease (Mat. No. 04-011).
2 Start crimping process using moderate pressure.
3 Gradually increase pressure until bush protrusion is completely crimped against bearing face.
4 Remove excess silicone grease (Mat. No. 04-011).
(m)Inspect crimped areas of retainer bush (1) for uniformity and absence of cracks, scratches or splintering.
(n)Check effective retention of bearing (3) in transverse load fitting and that bearing (3) rotates freely and smoothly.
(p)Protect crimped areas of retainer bush (1).
1 Clean and degrease retainer bush (1), washer (2) and transverse load fitting around bush with cleaning agent (Mat. No. 11-004) and allow to dry.
2 Apply sealant bead (Mat. No. 09-016) around bush (Ref. Fig. 803).
3 Protect sealant bead with nylon coating (Mat. No. 16-003).

C. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

RUDDER HINGE ARM NO. 1 - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION : MAKE CERTAIN THAT HINGE ARMS ARE SUITABLY PROTECTED DURING REMOVAL/INSTALLATION TO AVOID DAMAGE TO SURFACE PROTECTION.

CAUTION : UP TO FIVE HINGE ARMS MAY BE REMOVED AT ONE TIME. HINGE ARM NO. 4 WITH SUPPORT STRUT AND EITHER HINGE ARM NO. 1, 6 OR 7 MUST REMAIN INSTALLED.

NOTE : SHUR-LOK and STA-LOK locking systems are interchangeable.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 8 m (26 ft.)
B. 98A27207507000	Extractor - Rudder Bearings
or	
98A27207507001	Extractor - Rudder Bearings (Socket Wrench Set for Groove Nuts 98A27207507700 used only) (for SHUR-LOK Locking System)
C. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK (for SHUR-LOK Locking System)
D. SL90-315-3750	Wrenches - Notched, Tightening of Nuts NSA5454 (for STA-LOK Locking System)
E. SL90-314-3750	Tool - Extraction, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
F. SL90-359-3750	Tool - Installation, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
G. SL90-313-3750	Tool - Installation, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
H.	Circuit Breaker Safety Clips
J.	Cupwashers
K.	Cotter Pins
L.	Torque Wrench, 1 m.daN (88.5 lbf.in.)
M. Material No. 04-004	Common Greases (Ref. 20-31-00)
N. Material No. 05-005	Special Materials (Ref. 20-31-00)
P. Material No. 05-027	Special Materials (Ref. 20-31-00)
Q. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures
- 20-28-11, P. Block 1 Electrical Bonding D
- 27-25-00, P. Block 501 Control Surface Position Indicating (Rudder) D
- 27-25-11, P. Block 401 Rudder Position Transmitter D
- 51-75-10, P. Block 801 Repair of Paint Coatings D
- 55-00-00, P. Block 301 Stabilizers - Standard Warnings and Procedures D
- 55-33-13, P. Block 401 Trailing Edge Access Panels D
- 55-42-13, P. Block 401 Rudder Leading Edge Access Panels D

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Open, safety and tag the following circuit breaker:

PANEL	SERVICE	IDENT.	LOCATION
133VU	FLT CTL/CTL SURF POS	1CT	334/S61

(3)Position access platform.
(4)Remove vertical stabilizer trailing edge access panel 325BL (Ref. 55-33-13, P. Block 401).
(5)Remove rudder leading edge access panel 326BL (Ref. 55-42-13, P. Block 401).
(6)Remove rear stiffening section (8) between trailing edge RIB2 and RIB3 as follows (Ref. Fig. 401):
(a)Remove screws (7) and stiffening section (8).
(7)Remove position transmitter (Ref. 27-25-11, P. Block 401).
(8)Remove electrical harness (4) as follows (Ref. Fig. 401):
(a)Remove screw (6), washer (5), nut (3), and remove electrical harness from hinge arm (1).

B. Removal (Ref. Fig. 402)

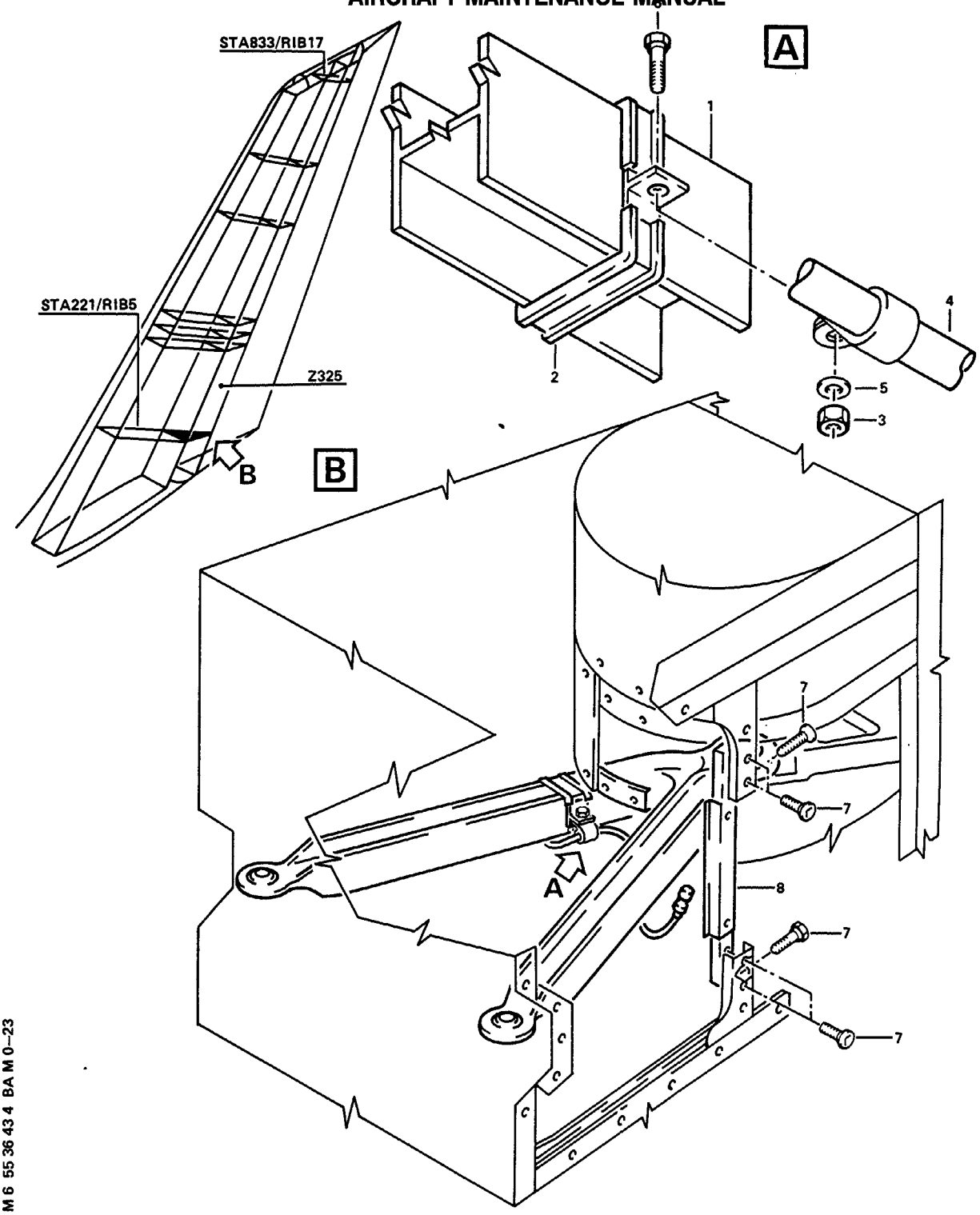
**ON RUDDER HINGE ARMS WITH SHUR-LOK LOCKING SYSTEM

(1)Remove nuts (24, 31), bolts (21, 28) and washers (22, 29) to disconnect bonding straps (23, 30) from hinge arm (1).
(2)Remove cotter pins (10, 39).
(3)Remove lockwashers (20, 36) using SHUR-LOK tool set P/N 98A27907509000.
(4)Remove slotted ring nuts (19, 35) using socket wrench P/N 98A27207507700.
(5)Remove cup washers (17, 34), bonding washer (16), bushes (15, 33), bolts (11, 38), sleeves (12, 37) and retaining plate (13).
NOTE: The bonding washer (16) is used for bonding only if a metal rudder is installed.
(6)Remove hinge arm (1) from attach fitting and remove bushes (32, 14).

** ON RUDDER HINGE ARMS WITH STA-LOK LOCKING SYSTEM

(1)Remove nuts (24, 31), bolts (21, 28), washers (22, 29) and disconnect bonding straps (23, 30) from hinge arm (1).
(2)Remove cotter pins (10, 39).
(3)Remove retaining rings (46) using STA-LOK extractor P/N SL90-314-3750.
(4)Remove ring nuts (45) using notched wrench P/N SL90-315-3750.
(5)Remove cup washers (17, 34), bonding washer (16), bushes (15, 33), bolts (11, 38), sleeves (12, 37) and retaining plate (13).
NOTE: The bonding washer (16) is used for bonding only if a metal rudder is installed.
(6)Remove hinge arm (1) from attach fitting and remove bushes (32, 14).

** ON ALL RUDDER HINGE ARMS



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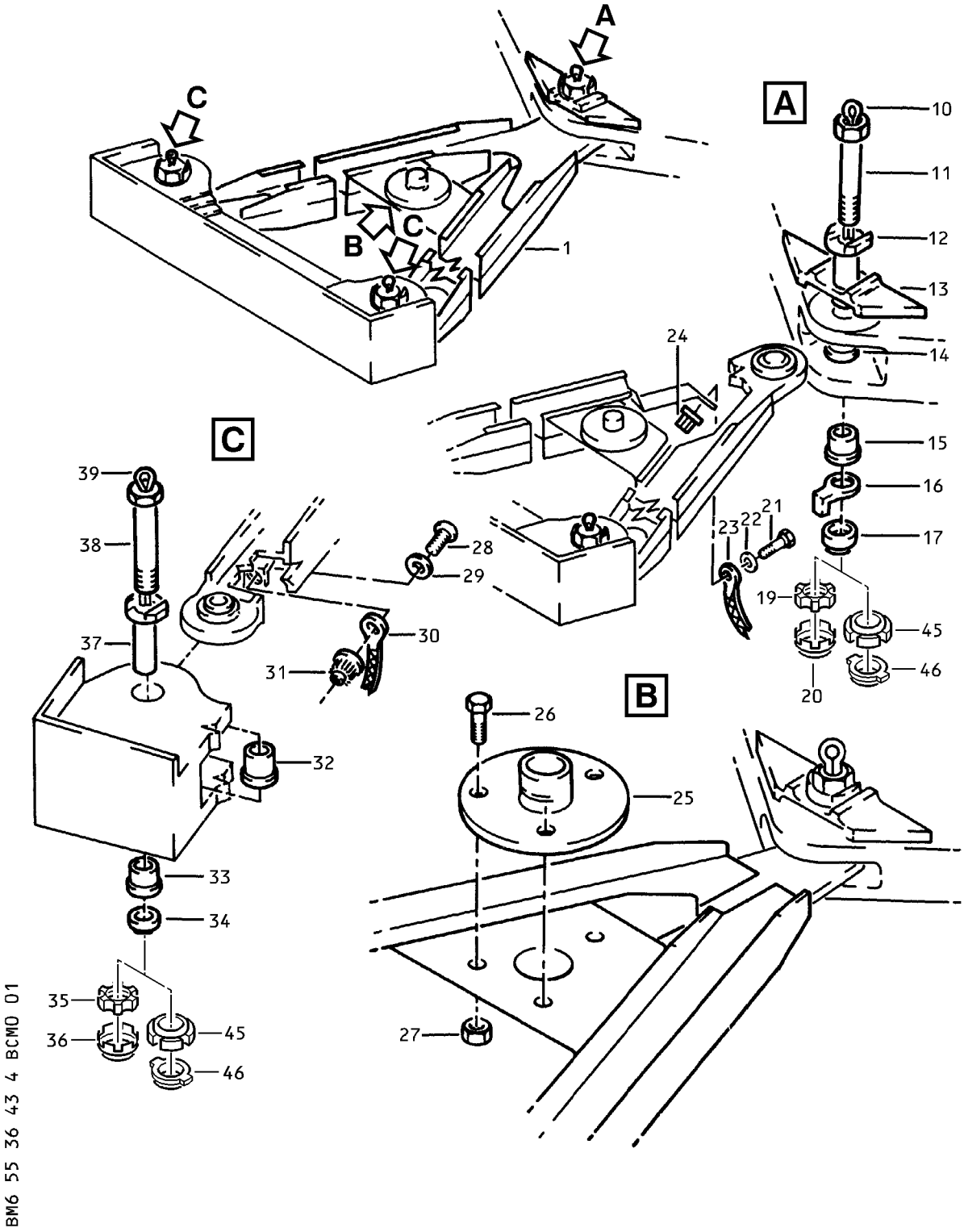
Stiffening Section and Electrical Harness
Figure 401



Rudder Hinge Arm No. 1
Figure 402

C. Preparation of Replacement Components (Ref. Fig. 401, 402)
(1)Clean bolts (11, 38), sleeves (12, 37) and bushes (14, 15, 32, 33) with cleaning agent (Mat. No. 11-004).
(2)Treat bolts (11, 38), sleeves (12, 37) and bushes (14, 15, 32, 33) with grease (Mat. No. 04-004).
(3)Remove nuts (27), bolts (26) and flange plate (25) from removed hinge arm and install on replacement hinge arm.
(4)TORQUE nuts (27) to between 0.81 and 0.89 m.daN (71.5 and 79 lbf.in.).
(5)Transfer electrical harness clip (2) from removed hinge arm to replacement hinge arm.

D. Installation (Ref. Fig. 402)

**ON RUDDER HINGE ARMS WITH SHUR-LOK LOCKING SYSTEM

(1)Install bushes (14, 32) and position hinge arm (1).
(2)Install retaining plate (13), sleeves (12, 37) and bolts (11, 38).
(3)Install bushes (15, 33), bonding washer (16), cup washers (17, 34) and slotted ring nuts (19, 35).
NOTE : The bonding washer (16) is used for bonding only if a metal rudder is installed.
(4)TORQUE slotted ring nuts (19, 35) to 0,5 m.daN (44 lbf.in.), using socket wrench P/N 98A27207507700.
(5)Install lockwashers (20, 36) using SHUR-LOK tool set P/N 98A27907509000.
(6)Install cotter pins (10, 39) and safety.
(7)Connect bonding straps (23,30) to hinge arm (1) with bolts (21, 28), washers (22, 29) and nuts (24, 31). For electrical bonding (Ref. 20-28-11, P. Block 1).
(8)Install position transmitter (Ref. 27-25-11, P. Block 401).
(9)Install electrical harness (4) with bolts (6), washers (5) and nuts (3) (Ref. Fig. 401).
(10)Install rear stiffening section (8) with screws (7) between trailing edge RIB2 and RIB3 (Ref. Fig. 401).
(11)Make certain that travel range of rudder is clear.

** ON RUDDER HINGE ARMS WITH STA-LOK LOCKING SYSTEM

(1)Install bushes (14, 32) and position hinge arm (1).
(2)Install retaining plate (13), sleeves (12, 37) and bolts (11, 38).
(3)Install bushes (15, 33), bonding washer (16), cup washers (17, 34) and ring nuts (45).
NOTE : The bonding washer (16) is used for bonding only if a metal rudder is installed.
(4)TORQUE slotted ring nuts (45) to 0.5 m.daN (44 lbf.in.) using notched wrench P/N SL90-315-3750.
(5)Install retaining rings (46) using STA-LOK tab washer installation tool P/N SL90-359-3750, or P/N SL90-313-3750.
(6)Install cotter pins (10, 39) and safety.
(7)Connect bonding straps (23, 30) to hinge arm (1) with bolts (21, 28), washers (22, 29) and nuts (24, 31). For electrical bonding (Ref. 20-28-11, P. Block 1).
(8)Install position transmitter (Ref. 27-25-11, P. Block 401).
(9)Install electrical harness (4) with bolts (6), washers (5) and nuts (3) (Ref. Fig. 401).
(10)Install rear stiffening section (8) with screws (7) between trailing edge RIB2 and RIB3 (Ref. Fig. 401).
(11)Make certain that travel range of rudder is clear.
(12)Remove safety clips and tags and close circuit breaker 1CT.

** ON ALL RUDDER HINGE ARMS

E. Test
(1)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of rudder position transmitter, making certain visually that rudder movement is full and free (Ref. 27-25-00, P. Block 501).
(3)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Apply corrosion-preventive agent (Mat. No. 05-005), using a brush, to visible cadmium plated items.
(3)Apply moisture-removing oil (Mat. No. 05-027) and corrosion-preventive agent (Mat. No. 05-005) to hinge arm no. 1 (Ref. 51-75-10, P. Block 801).
(4)Install rudder leading edge access panel 326BL (Ref. 55-42-13, P. Block 401).
(5)Install vertical stabilizer trailing edge access panel 325BL (Ref. 55-33-13, P. Block 401).
(6)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(7)Remove access platform.

RUDDER HINGE ARMS NO. 2 AND 3 - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION : MAKE CERTAIN THAT HINGE ARMS ARE SUITABLY PROTECTED DURING REMOVAL/INSTALLATION TO AVOID DAMAGE TO SURFACE PROTECTION.

CAUTION : UP TO FIVE HINGE ARMS MAY BE REMOVED AT ONE TIME. HINGE ARM NO. 4 WITH SUPPORT STRUT AND EITHER HINGE ARM NO. 1, 6 OR 7 MUST REMAIN INSTALLED.

NOTE : SHUR-LOK and STA-LOK locking systems are interchangeable.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 10 m (30 ft.)
B. 98A27203001000	Blanking Plates - Rudder Spar Box
C. 98A27207507000	Extractor - Rudder Bearings
or	
98A27207507001	Extractor - Rudder Bearings (Socket Wrench Set for Groove Nuts 98A27207507700 used only) (for SHUR-LOK Locking System)
D. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK (for SHUR-LOK Locking System)
E. SL90-313-6250	Tool - Installation, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
F. SL90-313-1-0000	Tool - Installation, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
G. SL90-314-6250	Tool - Extraction, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
H. SL90-314-1-0000	Tool - Extraction, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
J. SL90-315-1-0000	Wrenches - Notched, Tightening of Nuts NSA5454 (for STA-LOK Locking System)
K. SL90-374-6250	Wrenches - Notched, Tightening of Nuts NSA5454 (for STA-LOK Locking System)
L. SL90-437-6250	Wrenches - Notched, Tightening of Nuts NSA5454 (for STA-LOK Locking System)
M.	Cupwashers
N.	Tab Washers
P.	Torque Wrench, 3 m.daN (22 lbf.ft.)
Q. Material No. 04-004	Common Greases (Ref. 20-31-00)
R. Material No. 05-005	Special Materials (Ref. 20-31-00)
S. Material No. 05-027	Special Materials (Ref. 20-31-00)
T. Material No. 09-016	Sealants (Ref. 20-31-00)
U. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

- 20-28-11, P. Block 1	Electrical Bonding
- 27-21-00, P. Block 501	Mechanical Control (Rudder)
- 27-21-17, P. Block 401	Bellcranks Rib 1 thru Rib 10
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-42-13, P. Block 401	Rudder Leading Edge Access Panels

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove or open vertical stabilizer trailing edge access panels 325ER and 325DL (Ref. 55-33-13, P. Block 401).
(4)Remove rudder leading edge access panels 326DL and 326DR (Ref. 55-42-13, P. Block 401).
(5)Install correct blanking plate (Part of P/N 98A27203001000) in rudder leading edge.
(6)Remove rear stiffener between trailing edge RIB7 and RIB8 as follows (Ref. Fig. 401):
(a)Remove screws (2) and stiffener (1).
(7)If necessary, disconnect the upper pushrods to make the removal of the hinge arm No. 3 easier (Ref. 27-21-17, P. Block 401).

B. Removal of Electrical Harness and Hydraulic Pipelines (Ref. Fig. 402)
(1)Remove nuts (16), washers (17), screws (19) and harness clips (18) to detach harness (3) from hinge arm (4).
(2)Remove nuts (12) and clamp-block (11).
(3)Remove bolts (9) and washers (8) from brackets (20, 21).

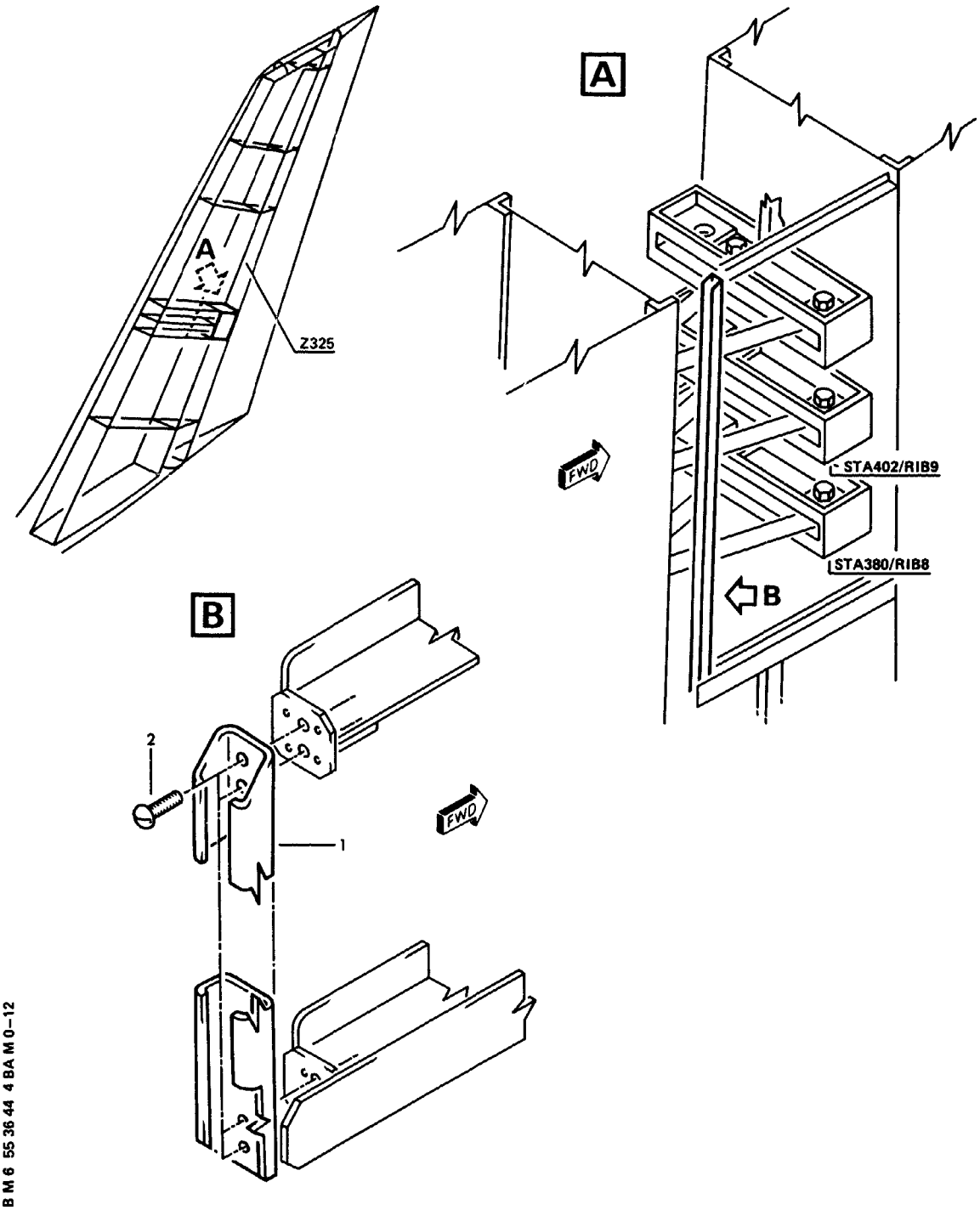
C. Removal of Hinge Arms (Ref. Fig. 403)

** ON RUDDER WITH SHUR-LOK LOCKING SYSTEM

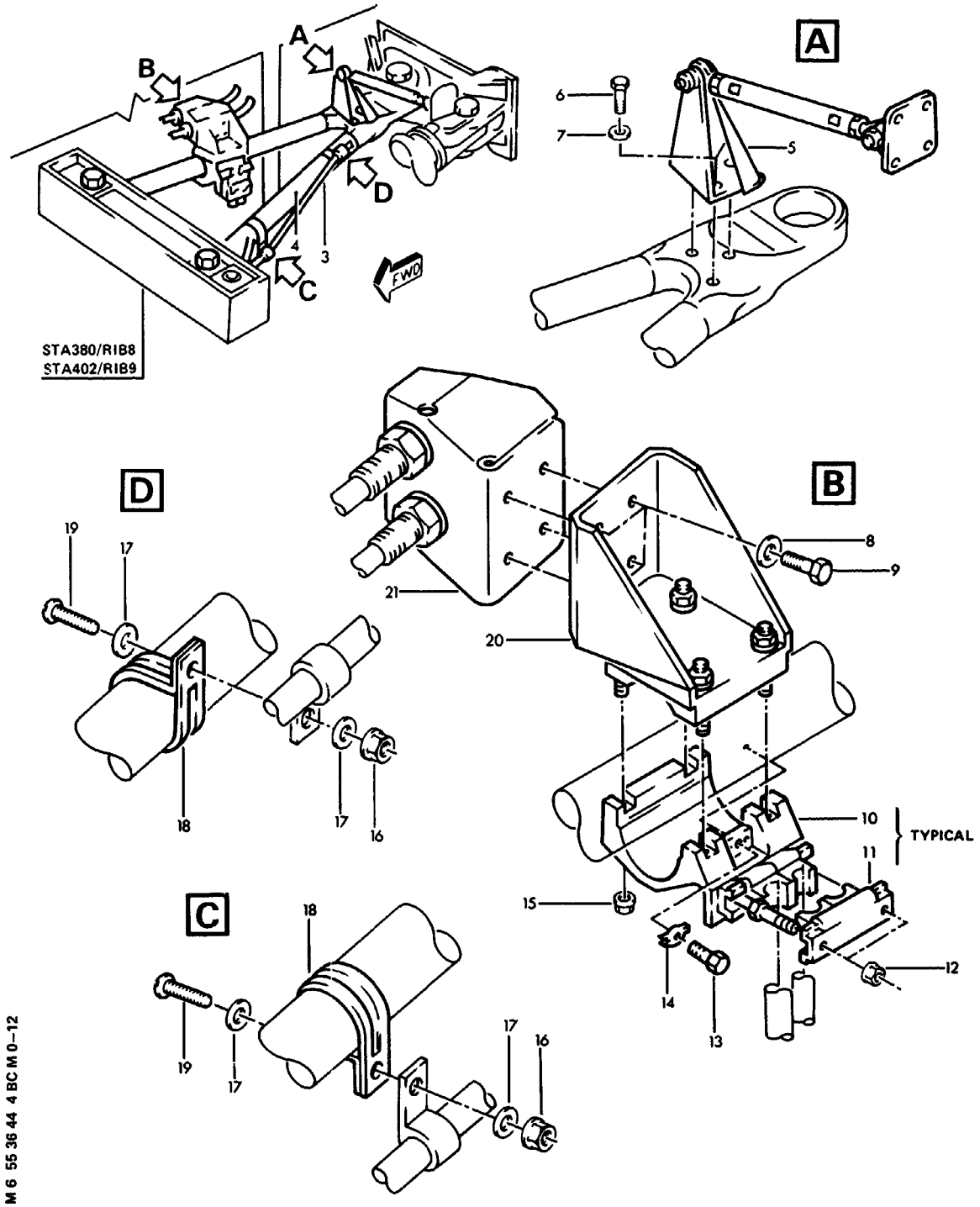
(1)Remove bolts (40, 47) and washers (41, 48) to disconnect bonding straps (35, 45) from hinge arm (4).
(2)Remove lockwashers (39, 50) using SHUR-LOK tool set P/N 98A27907509000.
(3)Remove slotted ring nuts (38, 51) using socket wrench set P/N 98A27207507700.
(4)Remove cupwashers (36, 52), bonding strap (35), bolts (31, 55), locking device (32) and washers (54).
(5)Deflect rudder fully left.
(6)Remove hinge arm (4) and bushes (33, 34, 49, 53).

** ON RUDDER WITH STA-LOK LOCKING SYSTEM

(1)Remove bolts (40, 47), washers (41, 48) and disconnect bonding straps (35, 45) from hinge arm (4).
(2)Remove retaining rings (60), using STA-LOK extractor P/N SL90-314-6250.
(3)Remove retaining rings (69) using STA-LOK extractor P/N SL90-314-1-0000.
(4)Remove ring nut (68) using notched wrench P/N SL90-315-1-0000 and ring nuts (61) using notched wrench P/N SL90-374-6250 or P/N SL90-437-6250.
(5)Remove cupwashers (36, 52), bonding strap (35), bolts (31, 55), locking device (32) and washers (54).
(6)Deflect rudder fully left.
(7)Remove hinge arm (4) and bushes (33, 34, 49, 53).

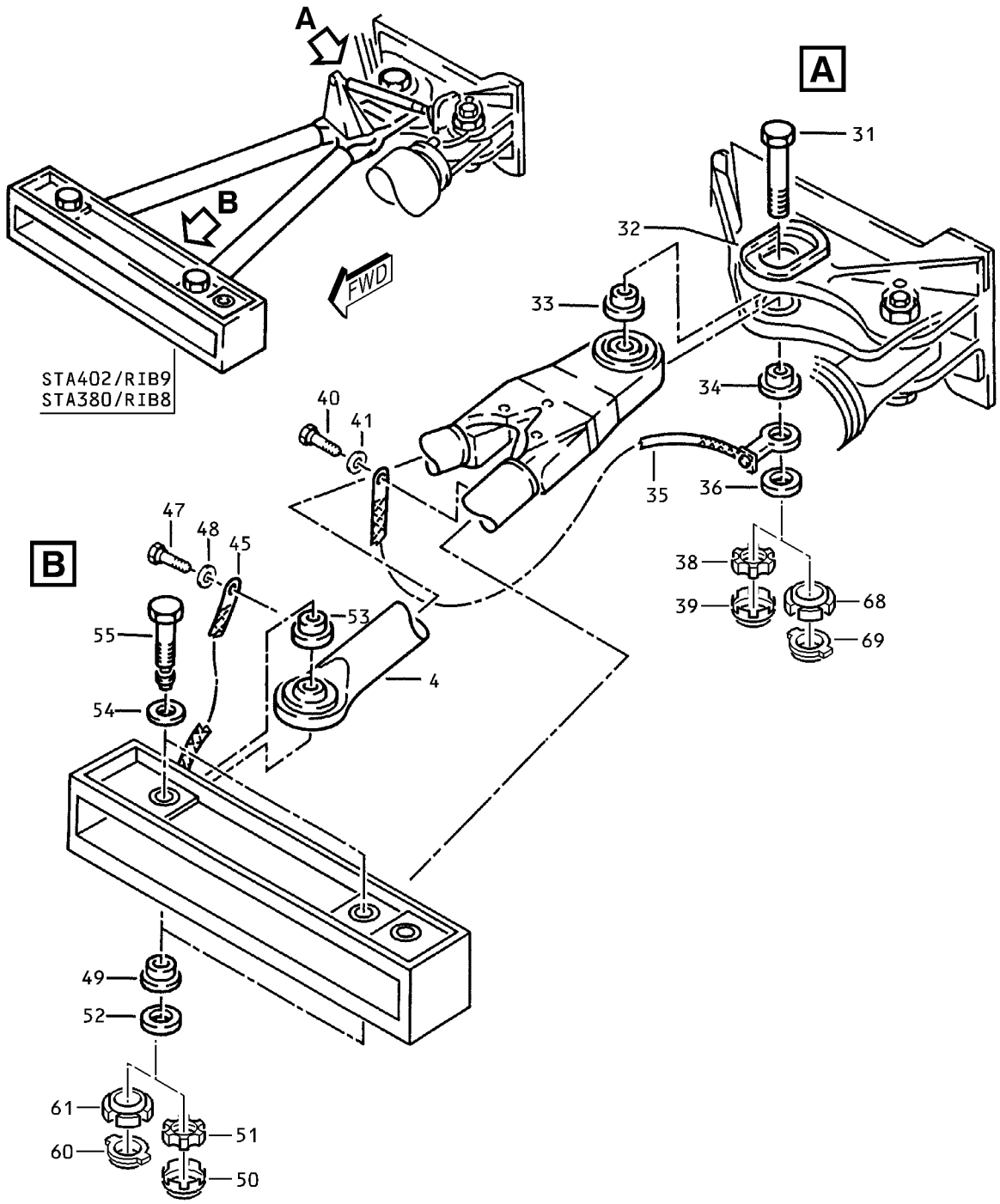


Trailing Edge Stiffener
Figure 401



B M 6 55 36 44 4 BC M 0-12

Electrical Harness and Hydraulic Pipelines
Figure 402



BM6 55 36 44 4 BEMO 01

Hinge Arms No. 2 and 3
Figure 403

D. Preparation for Installation (Ref. Fig. 402)

NOTE : The following procedure is not applicable if all the original components are to be installed.

(1)Remove locating bolt (13), tab washer (14), nuts (15) and brackets (10, 20) from hinge arm (4).
(2)Remove bolts (6), discard washers (7) and remove bracket (5).
(3)Remove old sealant from hinge arm (4) and brackets (10, 20) using a nonmetallic scraper.
(4)Clean mating surfaces of brackets (10, 20, 5) and hinge arm (4) with cleaning agent (Mat. No. 11-004).
(5)Position brackets (10, 20) on hinge arm (4) and install locating bolt (13) with tab washer (14), then nuts (15). For electrical bonding refer to 20-28-11, P. Block 1.
(6)Safety locating bolt (13) with tab washer (14).
(7)Seal edges of joint between brackets (10, 20) and hinge arm (4) with sealant (Mat. No. 09-016) (Ref. 51-76-10, P. Block 801).
(8)Position bracket (5) on hinge arm (4) and install bolts (6) with new washers (7).

E. Installation of Hinge Arms (Ref. Fig. 403)

** ON RUDDER WITH SHUR-LOK LOCKING SYSTEM

(1)Clean bushes (33, 34, 49, 53) and bolts (31, 55) with cleaning agent (Mat. No. 11-004) and apply grease (Mat. No. 04-004).
(2)Install bushes (33, 34, 49, 53) and position hinge arm (4).
(3)Apply sealant (Mat. No. 09-016) to spigot of locking device (32) (Ref. 51-76-10, P. Block 801).
(4)Install bolts (31, 55), washers (54) (at vertical stabilizer only), locking device (32), bonding strap (35), cupwashers (36, 52), and slotted ring nuts (38, 51). For electrical bonding refer to 20-28-11, P. Block 1.
(5)TORQUE nut (38) to 3.0 m.daN (22.13 lbf.ft.) and nuts (51) to 2.0 m.daN (14.7 lbf.ft.) using socket wrench set P/N 98A2720750770.
(6)Install lockwashers (39, 50) using SHUR-LOK tool set P/N 98A27907509000.
(7)Install bonding straps (35, 45) with bolts (40, 47) and washers (48, 41). For electrical bonding refer to 20-28-11, P. Block 1.

** ON RUDDER WITH STA-LOK LOCKING SYSTEM

(1)Clean bushes (33, 34, 49, 53) and bolts (31, 55) with cleaning agent (Mat. No. 11-004) and apply grease (Mat. No. 04-004).
(2)Install bushes (33, 34, 49, 53) and position hinge arm (4).
(3)Apply sealant (Mat. No. 09-016) to spigot of locking device (32) (Ref. 51-76-10, P. Block 801).
(4)Install bolts (31, 55), washers (54) (at vertical stabilizer only), locking device (32), bonding strap (35), cupwashers (36, 52), and ring nuts (68, 61). For electrical bonding refer to 20-28-11, P. Block 1.
(5)TORQUE nut (68) to 3.0 m.daN (22.13 lbf.ft.) using notched wrench P/N SL90-315-1-0000.
(6)TORQUE nuts (61) to 2.0 m.daN (14.7 lbf.ft.) using notched wrench P/N SL90-374-6250 or P/N SL90-437-6250.
(7)Install retaining rings (60), using STA-LOK tab washer installation tool P/N SL90-313-6250.
(8)Install retaining rings (69) using STA-LOK tab washer installation tool P/N SL90-313-1-0000.

(9)Install bonding straps (35, 45) with bolts (40, 47) and washers (48, 41). For electrical bonding refer to 20-28-11, P. Block 1.

** ON ALL RUDDERS

F. Installation of Electrical Harness and Hydraulic Pipelines (Ref. Fig. 402)
(1)Install washers (8) and bolts (9) in brackets (20, 21).
(2)Position hydraulic pipelines and install clamping block (11) and nuts (12). For electrical bonding refer to 20-28-11, P. Block 1.
(3)Install harness clips (18), position harness (3) and install screws (19), washers (17) and nuts (16).
(4)Install rear stiffener between trailing edge RIB7 and RIB8 (Ref. Fig. 401).
(a)Position stiffener (1) and install screws (2).
(5)If necessary, connect the upper pushrods (Ref. 27-21-17, P. Block 401).

G. Test
(1)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of rudder mechanical controls, making certain visually that rudder movement is full and free (Ref. 27-21-00, P. Block 501).
(3)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

H. Close-Up
(1)Remove blanking plate.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Apply corrosion-preventive agent (Mat. No. 05-005), using a brush, to visible cadmium plated items.
(4)Apply moisture-removing oil (Mat. No. 05-027) and corrosion-preventive

agent (Mat. No. 05-005) to hinge arms no. 2 and 3 (Ref. 51-75-10, P. Block 801).

(5) Install rudder leading edge panels 326DL and 326DR (Ref. 55-42-13, P. Block 401).

(6) Install or close vertical stabilizer trailing edge access panels 325ER and 325DL (Ref. 55-33-13, P. Block 401).

(7) Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).

(8) Remove access platform.

RUDDER HINGE ARM NO. 4 - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION : MAKE SURE THAT HINGE ARMS ARE SUITABLY PROTECTED DURING REMOVAL/INSTALLATION TO AVOID DAMAGE TO SURFACE PROTECTION.

CAUTION : WHEN HINGE ARM NO. 4 IS TO BE REMOVED, ALL OTHER HINGE ARMS AND RUDDER FIXTURE TOOL MUST BE INSTALLED.

NOTE : SHUR-LOK and STA-LOK locking systems are interchangeable.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 16 m (52 ft.)
B. 98A27203001000	Blanking Plates - Rudder Spar Box
C. 98A27207507000	Extractor - Rudder Bearings
or	
98A27207507001	Extractor - Rudder Bearings (Socket Wrench Set for Groove Nuts 98A27207507700 used only) (for SHUR-LOK Locking System)
D. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK (for SHUR-LOK Locking System)
E. 98A27207561002	Rudder Fixture - Vertical Stabilizer
R or	
R 98A27208514001	Rudder Fixture - Vertical Stabilizer
F. SL90-374-6250	Wrenches - Notched, Tightening of Nuts NSA5454-10RH (for STA-LOK Locking System)
G. SL90-437-6250	Wrenches - Notched, Tightening of Nuts NSA5454-10RH (for STA-LOK Locking System)
H. SL90-314-6250	Tool - Extraction, Tab Washers STA-LOK NSA5454-10RH (for STA-LOK Locking System)
J. SL90-313-6250	Tool - Installation, Tab Washers STA-LOK NSA5454-10RH (for STA-LOK Locking System)
K.	Cotter Pins
L.	Cupwashers
M.	Corrosion Resistant Stainless Steel Lockwire 0.8 mm (0.032 in.) dia.
N.	Nonmetallic Scraper
P.	Tab washers
Q.	O-Ring Seals
R.	Torque Wrench, up to 13.6 m.daN (100 lbf.ft.)
S. Material No. 04-004	Common Greases (Ref. 20-31-00)
T. Material No. 05-005	Special Materials (Ref. 20-31-00)
U. Material No. 05-027	Special Materials (Ref. 20-31-00)
V. Material No. 09-016	Sealants (Ref. 20-31-00)
W. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

- 20-28-11, P. Block 1	Electrical Bonding
- 27-21-00, P. Block 501	Mechanical Control (Rudder)
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 51-76-10, P. Block 801	Repair of Sealing
- 53-10-71, P. Block 401	Rudder Fairings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-42-11, P. Block 401	Rudder Leading Edge Sections
- 55-42-13, P. Block 401	Rudder Leading Edge Access Panels

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove or open trailing edge access panels 325DL, 325ER, 325GL and 325HL (Ref. 55-33-13, P. Block 401).
(4)Remove leading edge access panels 326DR, 326DL, 326HR, 326GL and 326HL, (Ref. 55-42-11, P. Block 401 and 55-42-13, P. Block 401).
(5)Install correct blanking plate (Part of P/N 98A27203001000) on rudder leading edge.
R (6)Install rudder fixture P/N 98A27207561002 or P/N 98A27208514001 (Ref. Fig. 401).

R NOTE : For rudders post mod 8827, hold the rudder with a sling and
R a crane (Ref. 27-21-21, P. Block 401) in its position.

(7)Remove rear stiffener between trailing edge RIB7 and RIB8 (Ref. Fig. 401).
(a)Remove screws (2) and stiffener (1).

B. Removal of Electrical Harness and Hydraulic Pipeline Brackets (Ref. Fig. 402)
(1)Remove nuts (14), washers (15), screws (17) and harness clips (16), to detach harness (3) from hinge arm (4).
(2)Remove nuts (10) and clamp-block (9).
(3)Remove bolts (7) and washers (6) from brackets (5, 18).

** ON RUDER WITH SHUR-LOK LOCKING SYSTEM

C. Removal of Support Strut (Ref. Fig. 403)
(1)Remove cotter pins (30, 39).
(2)Remove lockwashers (37) using SHUR-LOK tool set P/N 98A27907509000.
(3)Remove slotted ring nuts (36) using socket wrench set P/N 98A27207507700.
(4)Remove cup washers (35), washer (32) and partially withdraw bolt (40). Remove support strut (5).
(5)Measure and record length of support strut for subsequent installation.

D. Removal of Hinge Arm (Ref. Fig. 403, 404)
(1)Remove bolt (62) and washer (63) to disconnect bonding strap (64) from hinge arm (4).
(2)Remove cotter pin (61), nut (60), washer (59), bolt (49), nut (58), tab washer (57), bonding strap (56) and bush (55).
(3)Remove bolt (51) and locking device (53).
(4)Remove lockwashers (68) using SHUR-LOK tool set P/N 98A27907509000.
(5)Remove slotted ring nuts (67) using socket wrench set P/N 98A27207507700.
(6)Remove cup washers (66), bolts (70) and washers (69).
(7)Remove hinge arm (4), bushes (65, 52) and bolt (40).

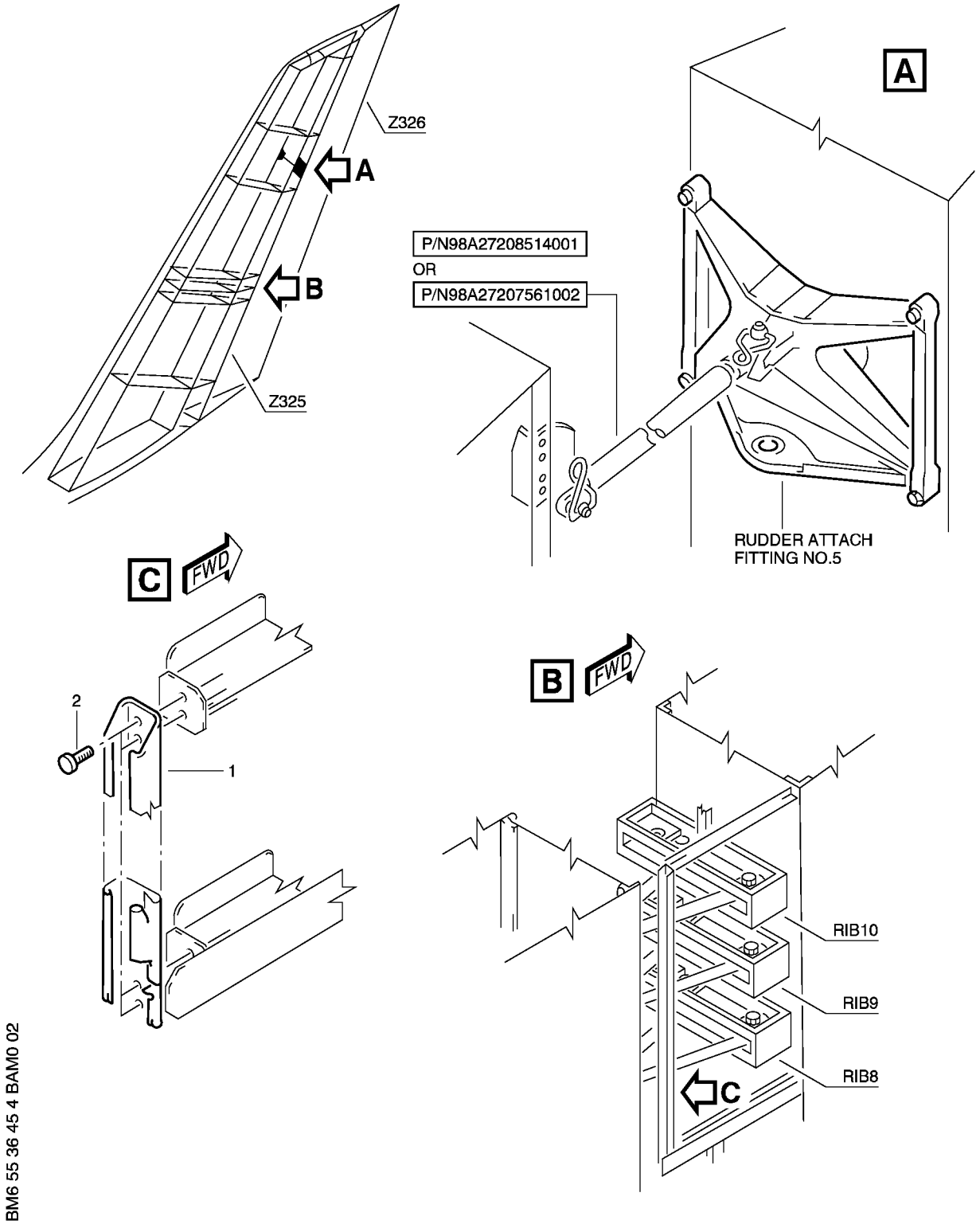
** ON RUDDER WITH STA-LOK LOCKING SYSTEM

E. Removal of Support Strut (Ref. Fig. 403)
(1)Remove cotter pins (30, 39).
(2)Remove retaining rings (47) using STA-LOK extractor P/N SL90-314-6250.
(3)Remove ring nuts (46) using notched wrench P/N SL90-374-6250, or P/N SL90-437-6250.
(4)Remove cup washers (35), washer (32) and partially withdraw bolt (40). Remove support strut (5).
(5)Measure and record length of support strut for subsequent installation.

F. Removal of Hinge Arm (Ref. Fig. 403, 404)
(1)Remove bolt (62) and washer (63) to disconnect bonding strap (64) from hinge arm (4).
(2)Remove cotter pin (61), nut (60), washer (59), bolt (49), nut (58), tab washer (57), bonding strap (56) and bush (55).
(3)Remove bolt (51) and locking device (53).
(4)Remove retaining rings (78) using STA-LOK extractor P/N SL90-314-6250.
(5)Remove ring nuts (77) using notched wrench P/N SL90-374-6250 or P/N SL90-437-6250.
(6)Remove cup washers (66), bolts (70) and washers (69).
(7)Remove hinge arm (4), bushes (65, 52) and bolt (40).

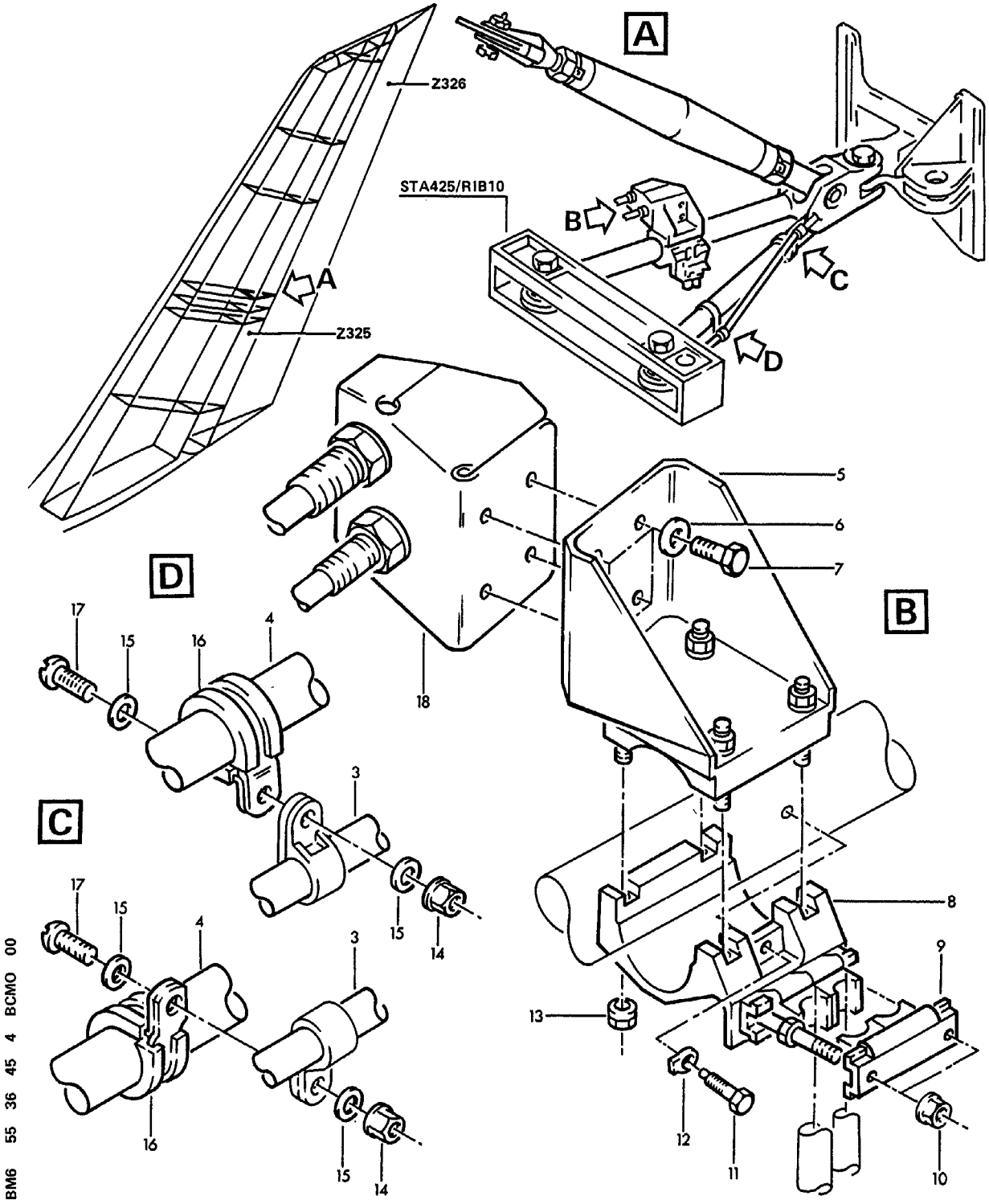
** ON ALL RUDDERS

G. Preparation for Installation (Ref. Fig. 402, 403)
(1)Remove O-ring seals (50) (Ref. Fig. 404)
(2)Clean bushes and bolts with cleaning agent (Mat. No. 11-004).
CAUTION : MAKE SURE THAT SELF-LUBRICATING BEARINGS ARE NOT CONTAMINATED WITH GREASE.
(3)Apply grease (Mat. No. 04-004) to all bushes and bolts.
(4)Install O-ring seals (50) (Ref. Fig. 404)
(5)If a new support strut is to be installed, adjust length of new strut as follows:
(a)Slacken locknuts (38, 41).
NOTE : Locknut (38) at upper end of support strut has a left-hand thread.
(b)Set length of new support strut (5) to that of removed support strut (5).
(c)Check alignment of eye- and fork-ends of support strut (5) and tighten locknuts (38, 41).
(d)TORQUE locknuts (38, 41) to 9.81 m.daN (72 lbf.ft.) and safety with lockwire.
(6)If a new rudder is to be installed, set length of support strut (5) to 545 mm (21.46 in.) and adjust after rudder installation.
NOTE : The following procedure is not applicable if the original items are to be installed.
(7)Remove locating bolt (11), tab washer (12), nuts (13) and brackets (5, 8) from old hinge arm (4) (Ref. Fig. 402).
(8)Remove old sealant from hinge arm (4) and brackets (5,8) using non-metallic scraper.
(9)Clean mating surfaces of brackets (5, 8) and hinge arm (4) with cleaning

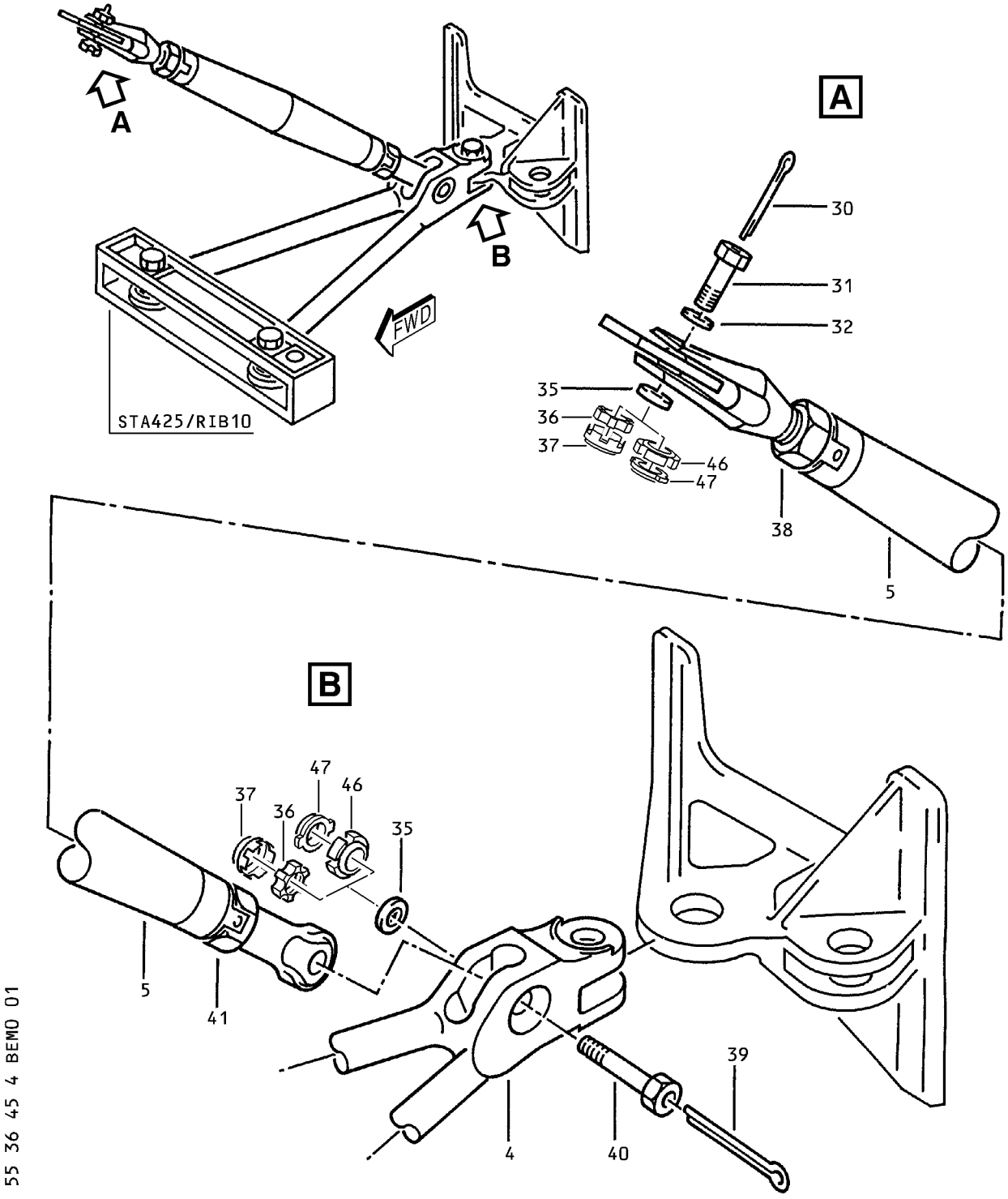


Rudder Fixture and Trailing Edge Stiffener
Figure 401

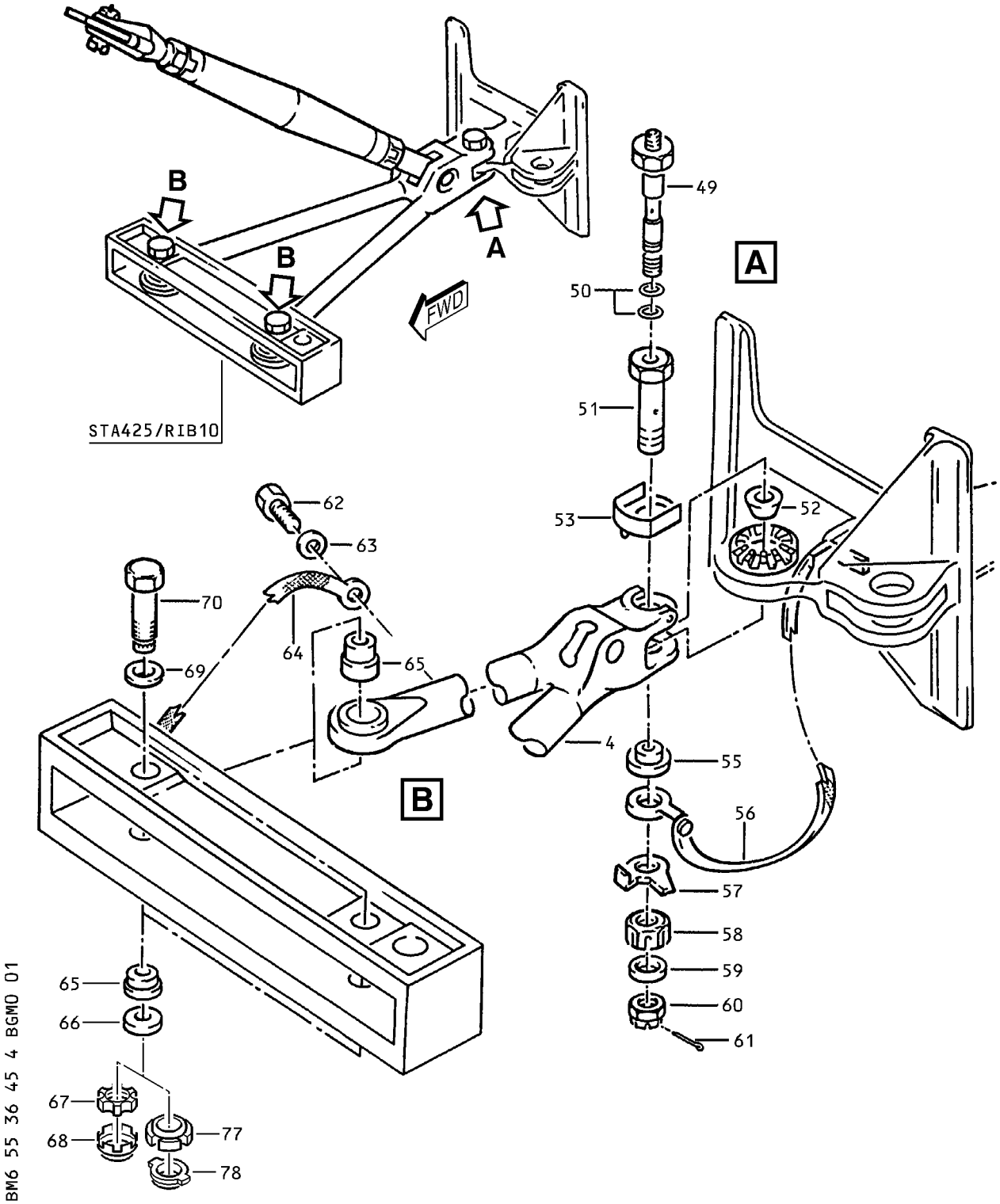
R



Electrical Harness and Hydraulic Pipeline Brackets
Figure 402



Support Strut
Figure 403



Hinge Arm No. 4
Figure 404

agent (Mat. No. 11-004).
(10)Position brackets (5, 8) on hinge arm (4) and install locating bolt (11), tab washer (12) and nuts (13). For electrical bonding refer to 20-28-11, P. Block 1.
(11)Safety bolt (11) with tab washer (12).
(12)Seal edges of joint between brackets (5, 8) and hinge arm (4) with sealant (Mat. No. 09-016) (Ref. 51-76-10, P. Block 801).

** ON RUDDER WITH SHUR-LOK LOCKING SYSTEM

H. Installation of Hinge Arm (Ref. Fig. 403, 404)
(1)Install bushes (52, 55, 65), partially install bolt (40) and cotter pin (39) and position hinge arm (4).
(2)Install washers (69), bolts (70), cup washers (66) and slotted ring nuts (67).
(3)Install locking device (53) and bolt (51).
(4)Install bonding strap (56), tab washer (57) and nut (58). For electrical bonding refer to 20-28-11, P. Block 1.
(5)TORQUE slotted ring nuts (67) to 2.0 m.daN (14.75 lbf.ft.), using socket wrench set P/N 98A27207507700.
(6)Install lockwashers (68) using SHUR-LOK tool set P/N 98A27907509000.
(7)TORQUE nut (58) to 3.0 m.daN (22.13 lbf.ft.).
(8)Safety nut (58) with tab washer (57).

CAUTION : MAKE SURE THAT CORRECT BOLT (49) IS INSTALLED.

(9)Install bolt (49), washer (59) and nut (60).
(10)Safety nut (60) with cotter pin (61).
(11)Lubricate bolt (49) with grease (Mat. No. 04-004) using grease gun.
(12)Connect bonding strap (64) to hinge arm (4) with washer (63) and bolt (62). For electrical bonding refer to 20-28-11, P. Block 1.

J. Installation of Electrical Harness and Hydraulic Pipeline Brackets (Ref. Fig. 402)
(1)Install washers (6) and bolts (7) on brackets (5, 18).
(2)Position hydraulic pipelines and install clamp-block (9) and nuts (10). For electrical bonding refer to 20-28-11, P. Block 1.
(3)Install harness clips (16), position harness (3) and install screws (17), washers (15) and nuts (14).
(4)Install rear stiffener between trailing edge RIB7 and RIB8 (Ref. Fig. 401).
(a)Position stiffener (1) and install screws (2).

K. Installation of Support Strut (Ref. Fig. 403)
(1)Position support strut (5) and install bolts (31, 40), washer (32), cup washers (35) and slotted ring nuts (36). For electrical bonding (Ref. 20-28-11, P. Block 1).
(2)TORQUE slotted ring nuts (36) to 2.00 m.daN (14.75 lbf.ft.) using socket wrench set P/N 98A27207507700.
(3)Safety slotted ring nuts (36) with lockwashers (37) using SHUR-LOK tool set P/N 98A27907509000.

(4)Safety bolts (31, 40) with cotter pins (30, 39).
(5)After installation of new rudder, adjust support strut (5) as follows:
(a)Measure gap between bottom of rudder and fairings (Ref. 53-10-71, P. Block 401).
(b)Loosen locknuts (38, 41) and adjust length of support strut (5) to obtain correct gap between rudder and fairings.
(c)Measure length of support strut (5) and make sure that length is 600 ± 19 mm (23.6 ± 0.75 in.) then tighten locknuts (38, 41).
(d)TORQUE locknuts (38, 41) to 9.81 m.daN (72 lbf.ft.) and safety with lockwire.
(e)If correct gap cannot be obtained within length limitations of support strut (5), adjust gap with shims as required (Ref. 53-10-71, P. Block 401).
R (6)Remove rudder fixture P/N 98A27207561002 or P/N 98A27208514001.

R NOTE : For rudders post mod 8827, remove the sling and the crane
R (Ref. 27-21-21, P. Block 401).

(7)Make sure that travel range of rudder is clear.

** ON RUDDER WITH STA-LOK LOCKING SYSTEM

L. Installation of Hinge Arm (Ref. Fig. 403, 404)
(1)Install bushes (52, 55, 65), partially install bolt (40) and cotter pin (39), and position hinge arm (4).
(2)Install washers (69), bolts (70), cup washers (66) and ring nuts (77).
(3)Install locking device (53) and bolt (51).
(4)Install bonding strap (56), tab washer (57) and nut (58). For electrical bonding refer to 20-28-11, P. Block 1.
(5)TORQUE ring nuts (77) to 2.0 m.daN (14.75 lbf.ft.) using notched wrench P/N SL90-374-6250 or P/N SL90-437-6250.
(6)Safety ring nuts (77) with retaining rings (78) using STA-LOK tab washer installation tool P/N SL90-313-6250.
(7)TORQUE nut (58) to 3.0 m.daN (22.13 lbf.ft.).
(8)Safety nut (58) with tab washer (57).
CAUTION : MAKE SURE THAT CORRECT BOLT (49) IS INSTALLED.
(9)Install bolt (49), washer (59) and nut (60). Tighten nut (60) finger-tight.
(10)Safety nut (60) with cotter pin (61).
(11)Lubricate bolt (49) with grease (Mat. No. 04-004) using grease gun.
(12)Connect bonding strap (64) to hinge arm (4) with washer (63) and bolt (62). For electrical bonding refer to 20-28-11, P. Block 1.

M. Installation of Electrical Harness and Hydraulic Pipeline Brackets (Ref. Fig. 402)
(1)Install washers (6) and bolts (7) in brackets (5, 18).
(2)Position hydraulic pipelines and install clamp-block (9) and nuts (10). For electrical bonding refer to 20-28-11, P. Block 1.
(3)Install harness clips (16), position harness (3) and install screws (17), washers (15) and nuts (14).
(4)Install rear stiffener between trailing edge RIB7 and RIB8 (Ref. Fig. 401).
(a)Position stiffener (1) and install screws (2).

N. Installation of Support Strut (Ref. Fig. 403)
(1)Position support strut (5) and install bolts (31, 40), cup washers (35) and ring nuts (46). For electrical bonding refer to 20-28-11, P. Block 1.
(2)TORQUE ring nuts (46) to 2.0 m.daN (14.75 lbf.ft.) using notched wrench P/N SL90-374-6250 or P/N SL90-437-6250.
(3)Safety ring nuts (46) with retaining rings (47) using STA-LOK tab washer installation tool P/N SL90-313-6250.
(4)Install cotter pins (30, 39).
(5)After installation of new rudder, adjust support strut (5) as follows:
(a)Measure gap between bottom of rudder and fairings (Ref. 53-10-71, P. Block 401).
(b)Loosen locknuts (38, 41) and adjust length of support strut (5) to obtain correct gap between rudder and fairings.
(c)Measure length of support strut (5) and make sure that length is 545 ± 19 mm (21.46 ± 0.75 in.), then tighten locknuts (38, 41).
(d)TORQUE locknuts (38, 41) to 9.81 m.daN (72 lbf.ft.) and safety with lockwire.
(e)If correct gap cannot be obtained within length limitations of support strut (5), adjust gap with shims as required (Ref. 53-10-71, P. Block 401).
R (6)Remove rudder fixture P/N 98A27207561002 or P/N 98A27208514001.

R NOTE : For rudders post mod 8827, remove the sling and the crane
R (Ref. 27-21-21, P. Block 401).

(7)Make sure that travel range of rudder is clear.

**ON ALL RUDDERS

P. Test
(1)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of rudder mechanical control, making certain visually that movement is full and free (Ref. 27-21-00, P. Block 501).
(3)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

Q. Close-Up
(1)Remove blanking plate.
(2)Make sure that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Apply corrosion-preventive agent (Mat. No. 05-005), using a brush, to visible cadmium plated items.
(4)Apply moisture-removing oil (Mat. No. 05-027) and corrosion-preventive agent (Mat. No. 05-005) to hinge arm no. 4 (Ref. 51-75-10, P. Block 801).
(5)Install leading edge access panels 326DR, 326DL, 326HR, 326GL and 326HL (Ref. 55-42-11, P. Block 401 and 55-42-13, P. Block 401).
(6)Install or close trailing edge access panels 325DL, 325ER, 325GL and 325HL (Ref. 55-33-13, P. Block 401).
(7)Return horizontal and vertical stabilizers to operating condition

(Ref. 55-00-00, P. Block 301).

RUDDER HINGE ARMS NO. 5 AND 6 - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION : MAKE CERTAIN THAT HINGE ARMS ARE SUITABLY PROTECTED DURING REMOVAL/INSTALLATION TO AVOID DAMAGE TO SURFACE PROTECTION.

CAUTION : UP TO FIVE HINGE ARMS MAY BE REMOVED AT ONE TIME. HINGE ARM NO. 4 WITH SUPPORT STRUT AND EITHER HINGE ARM NO. 1, 6 OR 7 MUST REMAIN INSTALLED.

NOTE : SHUR-LOK and STA-LOK locking systems are interchangeable.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 13 m (42 ft.)
B. 98A27203001000	Blanking Plates - Rudder Spar Box
C. 98A27207507000	Extractor - Rudder Bearings
or 98A27207507001	Extractor - Rudder Bearings (Socket Wrench Set for Groove Nuts 98A27207507700 used only) (for SHUR-LOK Locking System)
D. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK (for SHUR-LOK Locking System)
E. SL90-315-3750	Wrenches - Notched, Tightening of Nuts NSA5454 (for STA-LOK Locking System)
F. SL90-314-3750	Tool - Extraction, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
G. SL90-359-3750	Tool - Installation, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
H. SL90-313-3750	Tool-Installation, Tab Washers STA-LOK NSA 5454 (for STA-LOK Locking System)
J.	Cupwashers
K.	Torque Wrench, up to 0.84 m.daN (75.0 lbf.in.)
L. Material No. 04-004	Common Greases (Ref. 20-31-00)
M. Material No. 05-005	Special Materials (Ref. 20-31-00)
N. Material No. 05-027	Special Materials (Ref. 20-31-00)
P. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

- 20-28-11, P. Block 1	Electrical Bonding
- 27-21-00, P. Block 501	Mechanical Control (Rudder)
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-42-13, P. Block 401	Rudder Leading Edge Access Panels

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove or open trailing edge access panels 325GR, 325FL and 325HL (Ref. 55-33-13, P. Block 401).
(4)Remove leading edge access panels 326HL, 326FL, 326HR and 326FR (Ref. 55-42-13, P. Block 401).
(5)Install correct blanking plate (part of P/N 98A27203001000) in rudder leading edge.

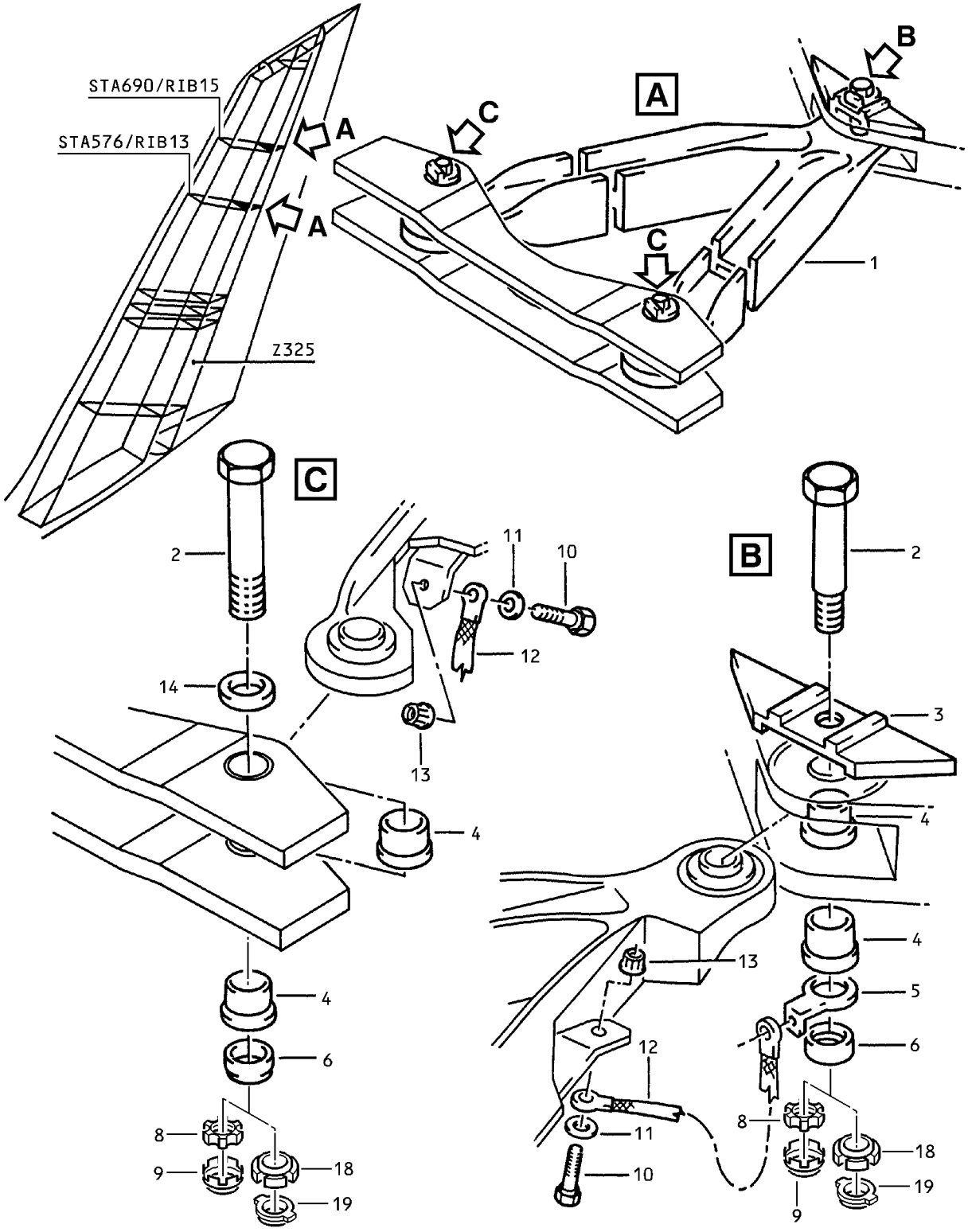
B. Removal (Ref. Fig. 401)

** ON RUDDER WITH STA-LOK LOCKING SYSTEM

(1)Remove nuts (13), bolts (10) and washers (11) to disconnect bonding straps (12) from hinge arm (1).
(2)Remove retaining rings (19) using STA-LOK extractor P/N SL90-314-3750.
(3)Remove ring nuts (18) using notched wrench P/N SL90-315-3750.
(4)Remove cup washers (6), bonding washer (5), bolts (2), washers (14) and locking plate (3).

NOTE : The bonding washer (5) is used for bonding only if a metal rudder is installed.

(5)Remove hinge arm (1) and bushes (4).



Hinge Arms No. 5 and 6
Figure 401

** ON RUDDER WITH SHUR-LOK LOCKING SYSTEM

(1)Remove nuts (13), bolts (10) and washers (11) to disconnect bonding straps (12) from hinge arm (1).
(2)Remove lockwashers (9) using SHUR-LOK tool set P/N 98A2790759000.
(3)Remove slotted ring nuts (8) using socket wrench set P/N 98A27207507700.
(4)Remove cup washers (6), bonding washer (5), bolts (2), washers (14) and locking plate (3).

NOTE : The bonding washer (5) is used for bonding only if a metal rudder is installed.

(5)Remove hinge arm (1) and bushes (4).

** ON ALL RUDDERS

C. Preparation for Installation (Ref. Fig. 401)
(1)Clean bolts (2) and bushes (4) with cleaning agent (Mat. No. 11-004).
(2)Apply grease (Mat. No. 04-004) to bolts (2) and bushes (4).

D. Installation (Ref. Fig. 401)

** ON RUDDER WITH STA-LOK LOCKING SYSTEM

(1)Install bushes (4) and position hinge arm (1).
(2)Install washers (14), locking plate (3) and bolts (2).
(3)Install bonding washer (5), cup washers (6) and ring nuts (18). For electrical bonding, (Ref. 20-28-11, P. Block 1.

NOTE : The bonding washer (5) is used for bonding only if a metal rudder is installed.

(4)TORQUE ring nuts (18) to 0.5 m.daN (44.25 lbf.in.) using notched wrench P/N SL90-315-3750.
(5)Install retaining rings (19) using STA-LOK tabwasher installation tool P/N SL90-359-3750 or P/N SL90-313-3750.
(6)Connect bonding straps (12) to hinge arm (1) with bolts (10), washers (11) and nuts (13). For electrical bonding (Ref. 20-28-11, P. Block 1.

** ON RUDDER WITH SHUR-LOK LOCKING SYSTEM

(1)Install bushes (4) and position hinge arm (1).
(2)Install washers (14), locking plate (3) and bolts (2).
(3)Install bonding washer (5), cup washers (6) and slotted ring nuts (8). For electrical bonding, (Ref. 20-28-11, P. Block 1).

NOTE : The bonding washer (5) is used for bonding only if a metal rudder is installed.

(4)TORQUE slotted ring nuts (8) to 0.5 m.daN (44 lbf.in.) using socket

wrench set P/N 98A27207507700.
(5)Install lockwashers (9) using SHUR-LOK tool set P/N 98A27907509000.
(6)Connect bonding straps (12) to hinge arm (1) with bolts (10), washers (11) and nuts (13). For electrical bonding (Ref. 20-28-11, P. Block 1).

** ON ALL RUDDERS

E. Test
(1)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of rudder mechanical control, making certain visually that movement is full and free (Ref. 27-21-00, P. Block 501).
(3)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

F. Close-Up
(1)Remove blanking plate.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Apply coating of corrosion-preventive agent (Mat. No. 05-005), using a brush, to visible cadmium plated items.
(4)Apply moisture-removing oil (Mat. No. 05-027) and corrosion preventive agent (Mat. No. 05-005) to hinge arms no. 5 and 6 (Ref. 51-75-10, P. Block 801).
(5)Install leading edge access panels 326HL, 326FL, 326HR and 326FR (Ref. 55-42-13, P. Block 401).
(6)Install or close trailing edge access panels 325GR, 325FL and 325HL (Ref. 53-33-13, P. Block 401).
(7)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(8)Remove access platform.

RUDDER HINGE ARM NO. 7 - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION : MAKE CERTAIN THAT HINGE ARMS ARE SUITABLY PROTECTED DURING REMOVAL/INSTALLATION TO AVOID DAMAGE TO SURFACE PROTECTION.

CAUTION : UP TO FIVE HINGE ARMS MAY BE REMOVED AT ONE TIME. HINGE ARM NO. 4 WITH SUPPORT STRUT AND EITHER HINGE ARM NO. 1, 6 OR 7 MUST REMAIN INSTALLED.

NOTE : SHUR-LOK and STA-LOK locking systems are interchangeable.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 14.5 m (48 ft.)
B. SL90-315-3750	Wrenches - Notched, Tightening of Nuts NSA5454 (for STA-LOK Locking System)
C. SL90-314-3750	Tool - Extraction, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
D. SL90-359-3750	Tool - Installation, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
E. SL90-313-3750	Tool - Installation, Tab Washers STA-LOK NSA5454 (for STA-LOK Locking System)
F. 98A27207507000	Extractor - Rudder Bearings
or 98A27207507001	Extractor - Rudder Bearings (Socket Wrench Set for Groove Nuts 98A27207507700 used only) (for SHUR-LOK Locking System)
G. 98A27907509000	Tool Set - Extraction/Insertion, SHUR-LOK (for SHUR-LOK Locking System)
H.	Cotter Pins
J.	Cupwashers
K.	Torque Wrench, 1 m.daN (88.5 lbf.in.)
L. Material No. 04-004	Common Greases (Ref. 20-31-00)
M. Material No. 05-005	Special Materials (Ref. 20-31-00)
N. Material No. 05-027	Special Materials (Ref. 20-31-00)
P. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

- 20-28-11, P. Block 1	Electrical Bonding
- 27-21-00, P. Block 501	Mechanical Control (Rudder)
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-42-13, P. Block 401	Leading Edge Access Panels

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilzers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove vertical stabilizer trailing edge access panel 325KL and 325JR (Ref. 55-33-13, P. Block 401).
(4)Remove rudder leading edge access panel 326KL and 326KR (Ref. 55-42-13, P. Block 401).

** ON RUDDER WITH STA-LOK LOCKING SYSTEM

B. Removal (Ref. Fig. 401)
(1)Remove nuts (15),(19), bolts (12),(16) and washers (13),(17) to disconnect bonding straps (14),(18) from hinge arm (1).
(2)Remove cotter pins (2),(27).
(3)Remove retaining rings (31),(34) using STA-LOK extractor P/N SL90-314-3750.
(4)Remove ring nuts (30),(33) using notched wrench P/N SL90-315-3750.
(5)Remove cupwashers (9),(22), bonding washer (8), bushes (7),(21), bolts (3),(26), sleeves (4),(25) and retaining plate (5).

NOTE : The bonding washer (8) is used for bonding only if a metal rudder is installed.

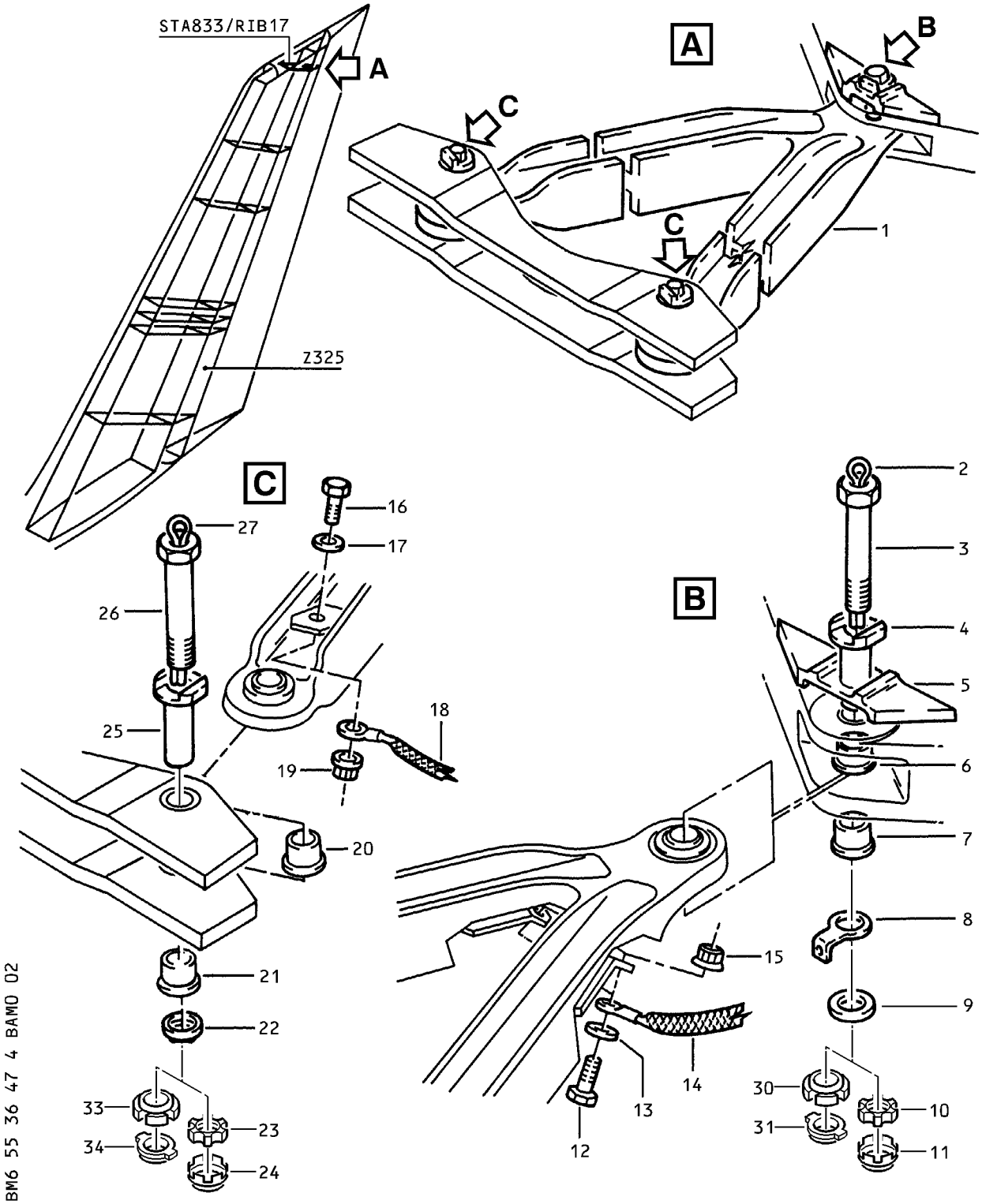
(6)Remove hinge arm (1) from attach fitting and remove bushes (6),(20).

**ON RUDDER WITH SHUR-LOK LOCKING SYSTEM

(1)Remove nuts (15),(19), bolts (12),(16) and washers (13),(17) to disconnect bonding straps (14),(18) from hinge arm (1).
(2)Remove cotter pins (2),(27).
(3)Remove lockwashers (11),(24) using SHUR-LOK tool set P/N 98A27907509000.
(4)Remove slotted ring nuts (10),(23) using socket wrench P/N 98A27207507700.
(5)Remove cupwashers (9),(22), bonding washer (8), bushes (7),(21), bolts (3),(26), sleeves (4),(25) and retaining plate (5).

NOTE : The bonding washer (8) is used for bonding only if a metal rudder is installed.

(6)Remove hinge arm (1) from attach fitting and remove bushes (6),(20).



Rudder Hinge Arm No. 7
Figure 401

**ON ALL RUDDERS

C. Preparation for Installation (Ref. Fig. 401)
(1)Clean bolts (3, 26), sleeves (4),(25) and bushes (6),(7),(21),(20) with cleaning agent (Mat. No. 11-004).
(2)Treat bolts (3),(26), sleeves (4),(25) and bushes (6),(7,(21),(20) with grease (Mat. No. 04-004).

D. Installation (Ref. Fig. 401)

**ON RUDDER WITH STA-LOK LOCKING SYSTEM

(1)Install bushes (6),(20) and position hinge arm (1).
(2)Install retaining plate (5), sleeves (4),(25) and bolts (3),(26).
(3)Install bushes (7),(21), bonding washer (8), cupwashers (9),(22) and slotted ring nuts (30),(33).

NOTE : The bonding washer (8) is used for bonding only if a metal rudder is installed.

(4)TORQUE ring nuts (30),(33) to 0,5 m.daN (44 lbf.in.) using notched wrench P/N SL90-315-3750.
(5)Install retaining rings (31),(34) using STA-LOK tab washer installation tool P/N SL90-359-3750, or P/N SL90-313-3750.
(6)Install cotter pins (2),(27).
(7)Connect bonding straps (14),(18) to hinge arm (1) with bolts (12),(16), washers (13),(17) and nuts (15),(19). For electrical bonding (Ref. 20-28-11, P. Block 1.
(8)Make certain that travel range of rudder is clear.

**ON RUDDER WITH SHUR-LOK LOCKING SYSTEM

(1)Install bushes (6),(20) and position hinge arm (1).
(2)Install retaining plate (5), sleeves (4),(25) and bolts (3),(26).
(3)Install bushes (7),(21), bonding washer (8), cupwashers (9),(22) and slotted ring nuts (10),(23).

NOTE : The bonding washer (8) is used for bonding only if a metal rudder is installed.

(4)TORQUE slotted ring nuts (10),(23) to 0,5 m.daN (44 lbf.in.) using socket wrench P/N 98A27207507700.
(5)Install lockwashers (11),(24), using SHUR-LOK tool set P/N 98A27907509000.
(6)Install cotter pins (2),(27) and safety.
(7)Connect bonding straps (14),(18), to hinge arm (1) with bolts (12),(16), washers (13),(17) and nuts (15),(19). For electrical bonding (Ref. 20-28-11, P. Block 1).
(8)Make certain that travel range of rudder is clear.

**ON ALL RUDDERS

E. Test
(1)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of rudder mechanical controls, making certain visually that rudder movement is full and free (Ref. 27-21-00, P. Block 501).
(3)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Apply corrosion-preventive agent (Mat. No. 05-005), using a brush, to visible cadmium plated item.
(3)Apply moisture-removing oil (Mat. No. 05-027) and corrosion-preventive agent (Mat. No. 05-005) to hinge arm no. 7 (Ref. 51-75-10, P. Block 801).
(4)Install rudder leading edge access panel 326KL and 326KR (Ref. 55-42-13, P. Block 401).
(5)Install vertical stabilizer trailing edge access panel 325KL and 325JR (Ref. 55-33-13, P. Block 401).
(6)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(7)Remove access platform.

RUDDER - DESCRIPTION AND OPERATION

1. General

A. The rudder is attached to hinge fittings on the trailing edge of the vertical stabilizer. It provides control of the aircraft in yaw.

B. The rudder can be deflected up to 30 degrees either side of neutral, under the power of three servo controls that are installed in the vertical stabilizer (Ref. 27-20-00). The rudder hinge line lies on the 70% line of the vertical stabilizer and rudder assembly, and is swept back 30 degrees.

2. Component Location

(Ref. Fig. 001)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	BOX-SPAR, RUDDER		326		55-41-00
	EDGE-LEADING, RUDDER		326		55-42-00
	TIP, RUDDER		326		55-44-00
	DISCHARGERS-STATIC		326		23-60-00

3. Description

A. The rudder comprises the following main components: rudder spar box (Ref. 55-41-00), rudder leading edge (Ref. 55-42-00) and rudder tip (Ref. 55-44-00).

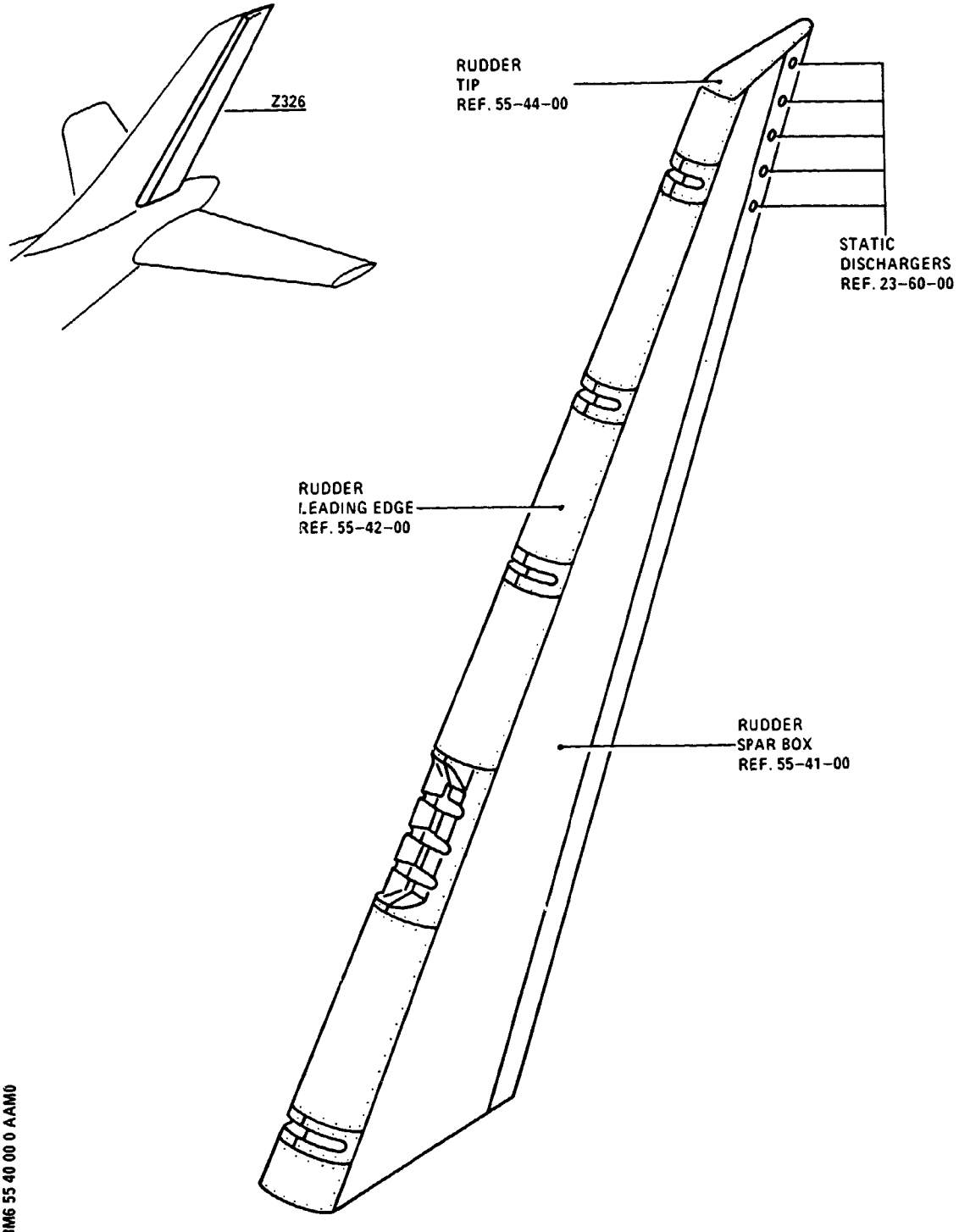
B. The rudder spar box is the main structural component to which the leading edge and tip are attached. The rudder hinge fittings are attached to the rudder spar.

C. The spar box is triangular in section and constructed from panels of resin fiber composite over a honeycomb core.

D. The rudder leading edge comprises leading edge sections, and two-piece access panels at the hinge positions. All sections of the rudder leading edge are attached to the rudder sparbox by screws, and all are removable. The rudder leading edge sections and access panels are formed from resin fiber composite over honeycomb core.

E. The rudder tip is made from laminated resin fiber composite over honeycomb core and attached by screws.

F. Static dischargers (Ref. 23-60-00) are attached to the upper portion of the rudder trailing edge to permit the discharge of static electricity from the aircraft.



Rudder
Figure 001

RUDDER - DESCRIPTION AND OPERATION

1. General

A. The rudder is attached to hinge fittings on the trailing edge of the vertical stabilizer. It provides control of the aircraft in yaw.

B. The rudder can be deflected up to 30 degrees either side of neutral, under the power of three servo controls that are installed in the vertical stabilizer (Ref. 27-20-00). The rudder hinge line lies on the 70% line of the vertical stabilizer and rudder assembly, and is swept back 30 degrees.

2. Component Location

(Ref. Fig. 001)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	BOX-SPAR, RUDDER		326		55-41-00
	TIP, RUDDER		326		55-44-00
	DISCHARGERS-STATIC		326		23-60-00

3. Description

A. The rudder comprises the following main components: rudder spar box (Ref. 55-41-00) and rudder tip (Ref. 55-44-00).

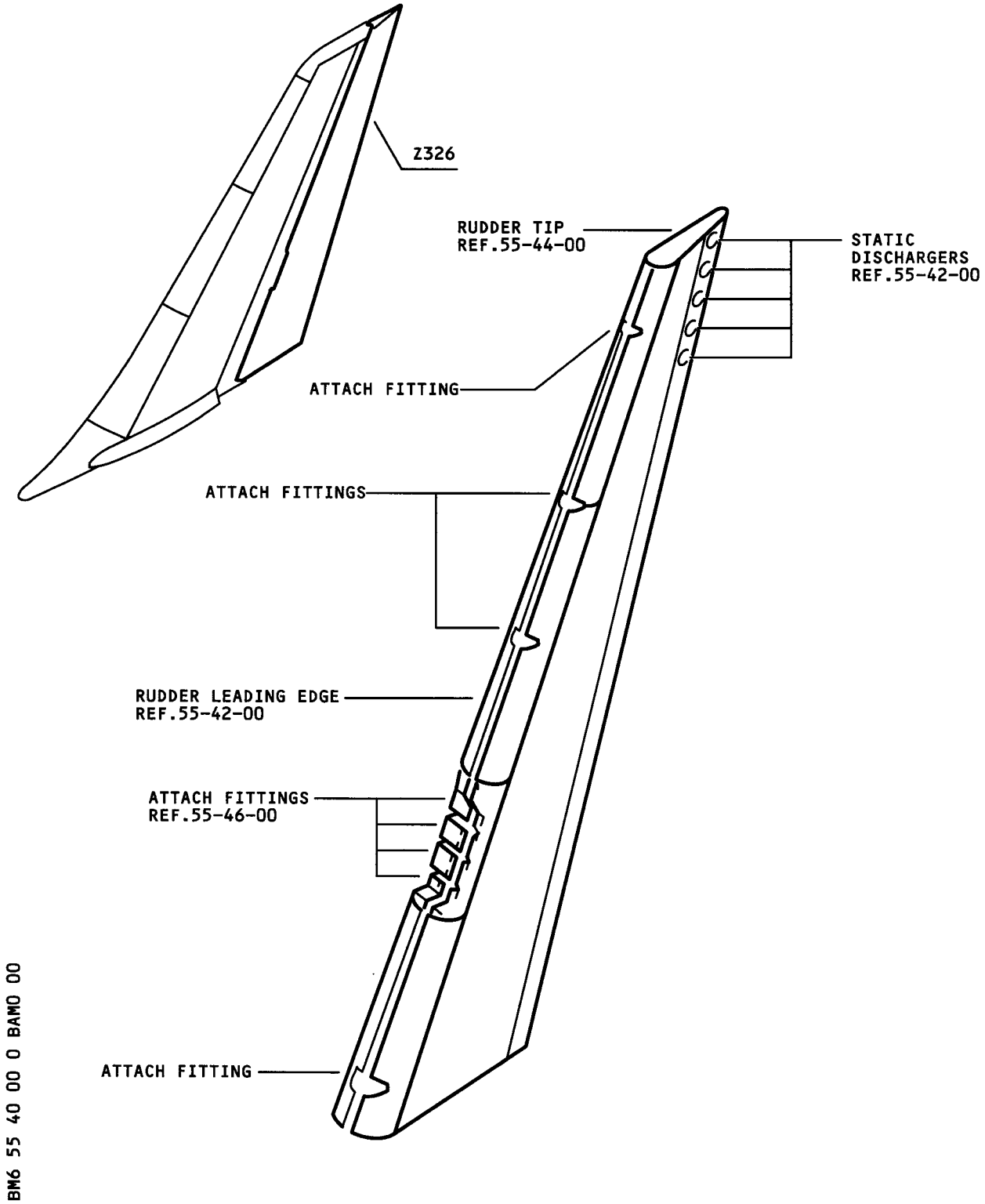
B. The rudder spar box is the main structural component to which the leading edge and tip are attached. The rudder hinge fittings are attached to the rudder spar.

C. The spar box is triangular in section and constructed from panels of resin fiber composite over a honeycomb core.

D. The rudder leading edge comprises leading edge sections, and two-piece access panels at the hinge positions. The rudder leading is attached to the rudder sparbox by rivets.
The rudder leading edge and access panels are formed from resin fiber composite.

E. The rudder tip is made from aluminum and attached by screws.
core and attached by screws.

F. Static dischargers (Ref. 23-60-00) are attached to the upper portion of the rudder trailing edge to permit the discharge of static electricity from the aircraft.



Rudder
Figure 001

RUDDER - INSPECTION/CHECK

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).
CAUTION : TO PREVENT FURTHER DEGRADATION MAKE CERTAIN THAT PAINT COATING OF COMPOSITE STRUCTURE IS RESTORED IF DAMAGED (REF. 51-75-10, P. BLOCK 801).

1. Rudder - Inspection/Check

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform, 6.5 to 16.0 m (21 to 53 ft.)
(2)	Torque Wrench, 0.8 m.daN (70.8 lbf.in.)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-42-11, P. Block 401	Rudder Leading Edge Sections
- 55-42-13, P. Block 401	Rudder Leading Edge Access Panels
	Nondestructive Testing Manual (NTM)

B. Procedure

(1) Job Set-Up

(a) Pressurize hydraulic systems (Ref. 29-10-00, P. Block 301), and move rudder fully left or right.

(b) Depressurize hydraulic systems (Ref. 29-10-00, P. Block 301).

(c) Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

(d) Position access platform.

(e) Remove rudder leading edge and access panels (Ref. 55-42-11, P. Block 401 and 55-42-13, P. Block 401).

** ON CARBON FIBER RUDDERS SERIAL NO. 1005-1034

(2)Inspection/Check (Ref. Fig. 601)

** ON CARBON FIBER RUDDERS SERIAL NO. 1035 AND SUBSEQUENT

(2)Inspection/Check (Ref. Fig. 602)

** ON ALL RUDDERS

NOTE : Should any damage occur beyond surface protection, a structural repair must be carried out.

(a)Visually inspect internal and external surfaces, skin panels, spar and RIBO for surface damage, distortion, cracks and chemical contamination.

(b)Carry out NDT inspection in the following areas (Ref. NTM-Manual):

1 Side panels in area of hinge fittings.

2 Around trailing edge forward fasteners up to hinge no. 5.

(c)Inspect spar to skin panel joints for security of attachment.

1 Remove loose and damaged screws.

2 Install screws as required.

3 TORQUE screws to between 0.6 and 0.7 m.daN (53.1 and 61.95 lbf.in.).

4 Check security of rivets.

** ON CARBON FIBER RUDDERS SERIAL NO. 1005-1034

(d)Inspect butt straps and trailing edge for security of attachment.

** ON CARBON FIBER RUDDERS SERIAL NO. 1035 AND SUBSEQUENT

(d)Inspect trailing edge for security of attachment.

** ON ALL RUDDERS

(e)Inspect lightning protection components and bonding straps for good condition and security of attachment.

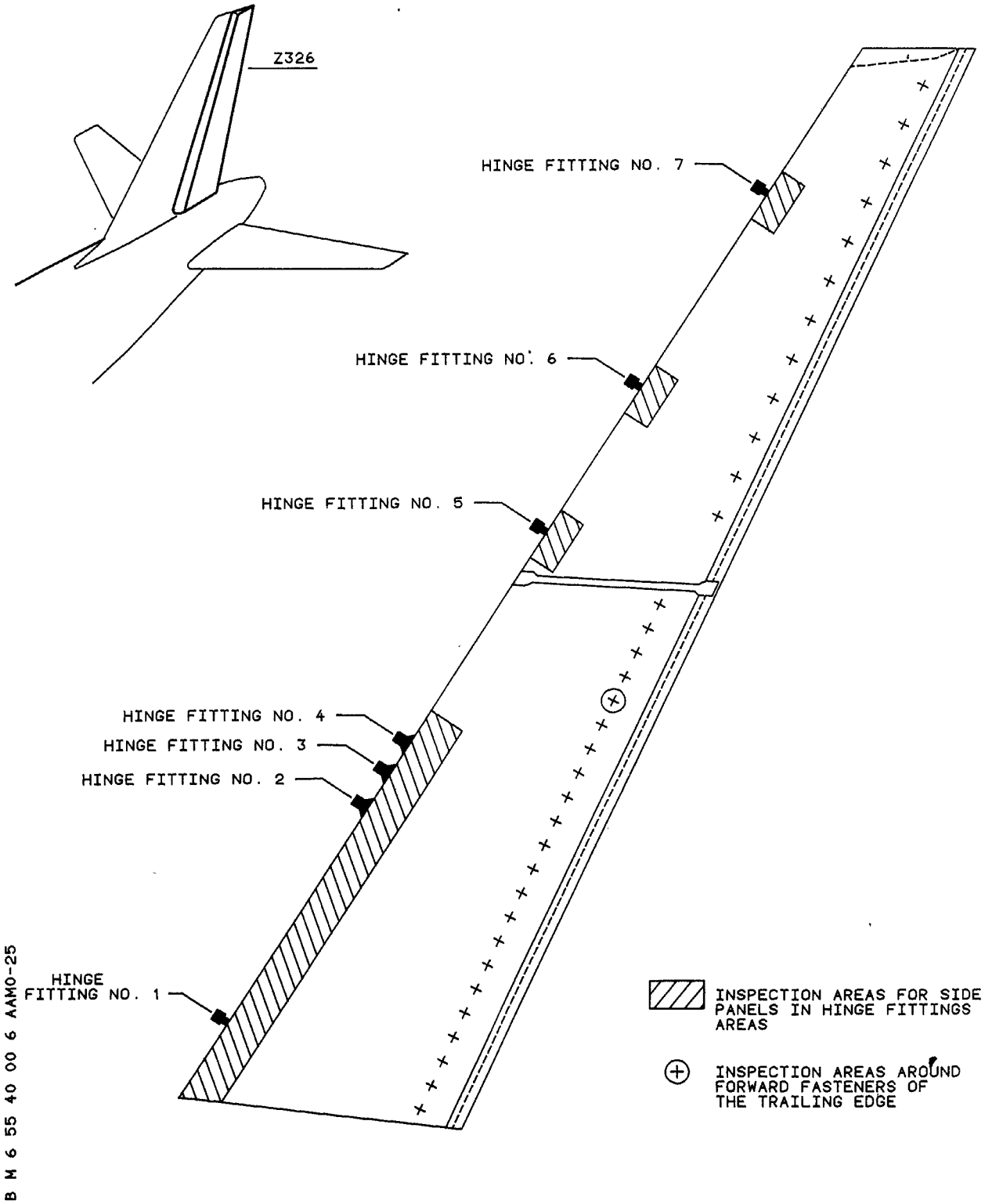
(3)Close-Up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

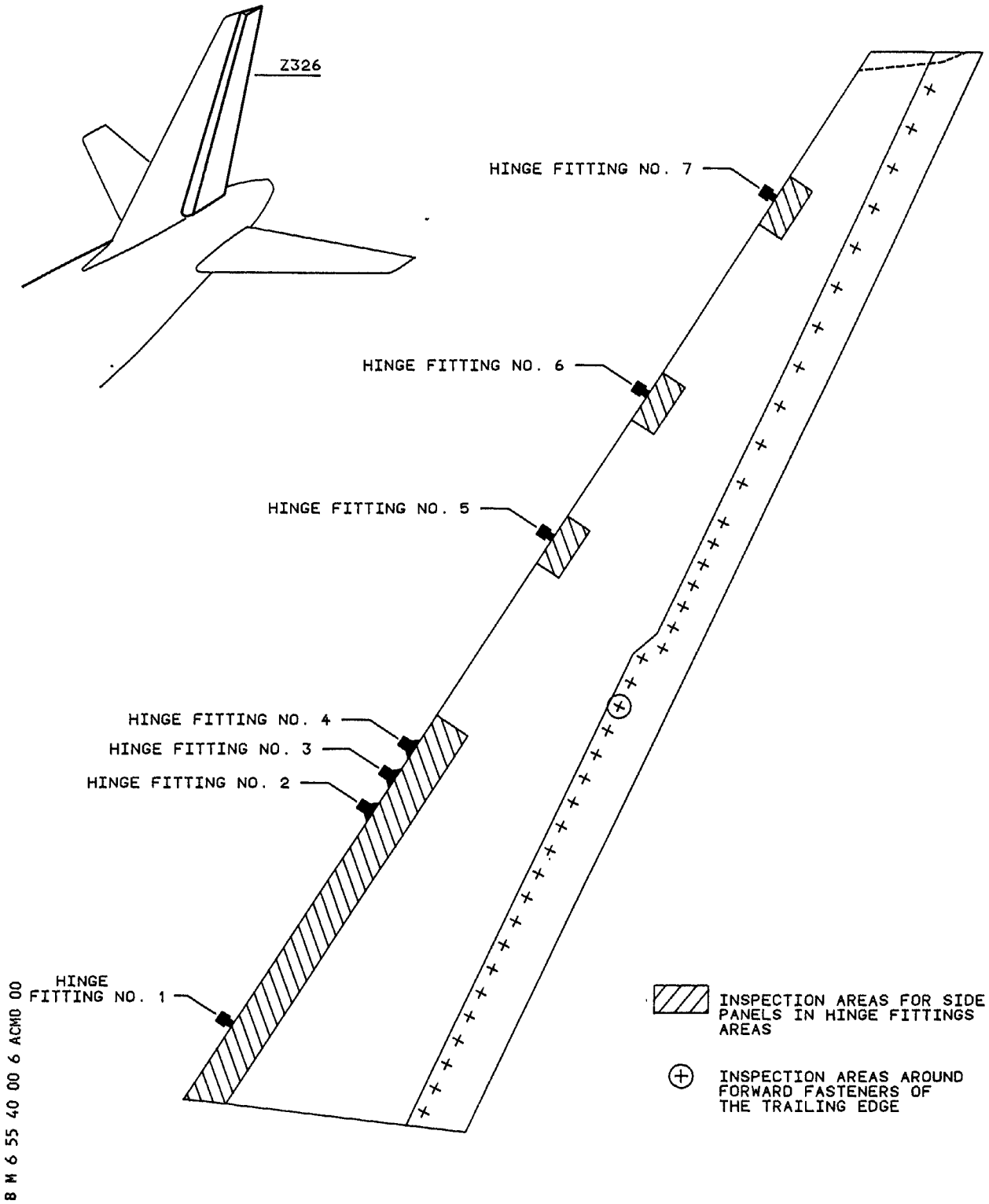
(b)Install rudder leading edge and access panels (Ref. 55-42-11, P. Block 401 and 55-42-13, P. Block 401).

(c)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).

(d)Remove access platform.



Rudder Inspection
Figure 601



Rudder Inspection
Figure 602

RUDDER - INSPECTION/CHECK

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).
CAUTION : TO PREVENT FURTHER DEGRADATION MAKE CERTAIN THAT PAINT COATING OF COMPOSITE STRUCTURE IS RESTORED IF DAMAGED (REF. 51-75-10, P. BLOCK 801).

1. Rudder - Inspection/Check

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform, 6.5 to 16.0 m (21 to 53 ft.)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
	Nondestructive Testing Manual (NTM)
	Structural Repair Manual (SRM)

B. Procedure

(1)Job Set-Up

(a)Pressurize hydraulic systems (Ref. 29-10-00, P. Block 301), and move rudder fully left or right.

(b)Depressurize hydraulic systems (Ref. 29-10-00, P. Block 301).

(c)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

(d)Position access platform.

(2)Inspection/Check (Ref. Fig. 601)

NOTE : Should any damage occur beyond surface protection, a structural repair must be carried out.

(a)Visually inspect internal and external surfaces, skin panels, spar and RIBO for surface damage, distortion, cracks, chemical contamination and pay special attention of debonding at the inner skin from the honeycomb core.

(b)Carry out NDT inspection in the following areas (Ref. NTM-Manual):

1 Side panels in area of hinge fittings.

2 Around trailing edge forward fasteners up to hinge no. 5.

(c)Inspect spar to skin panel joints for security of attachment.

1 Check security of rivets.

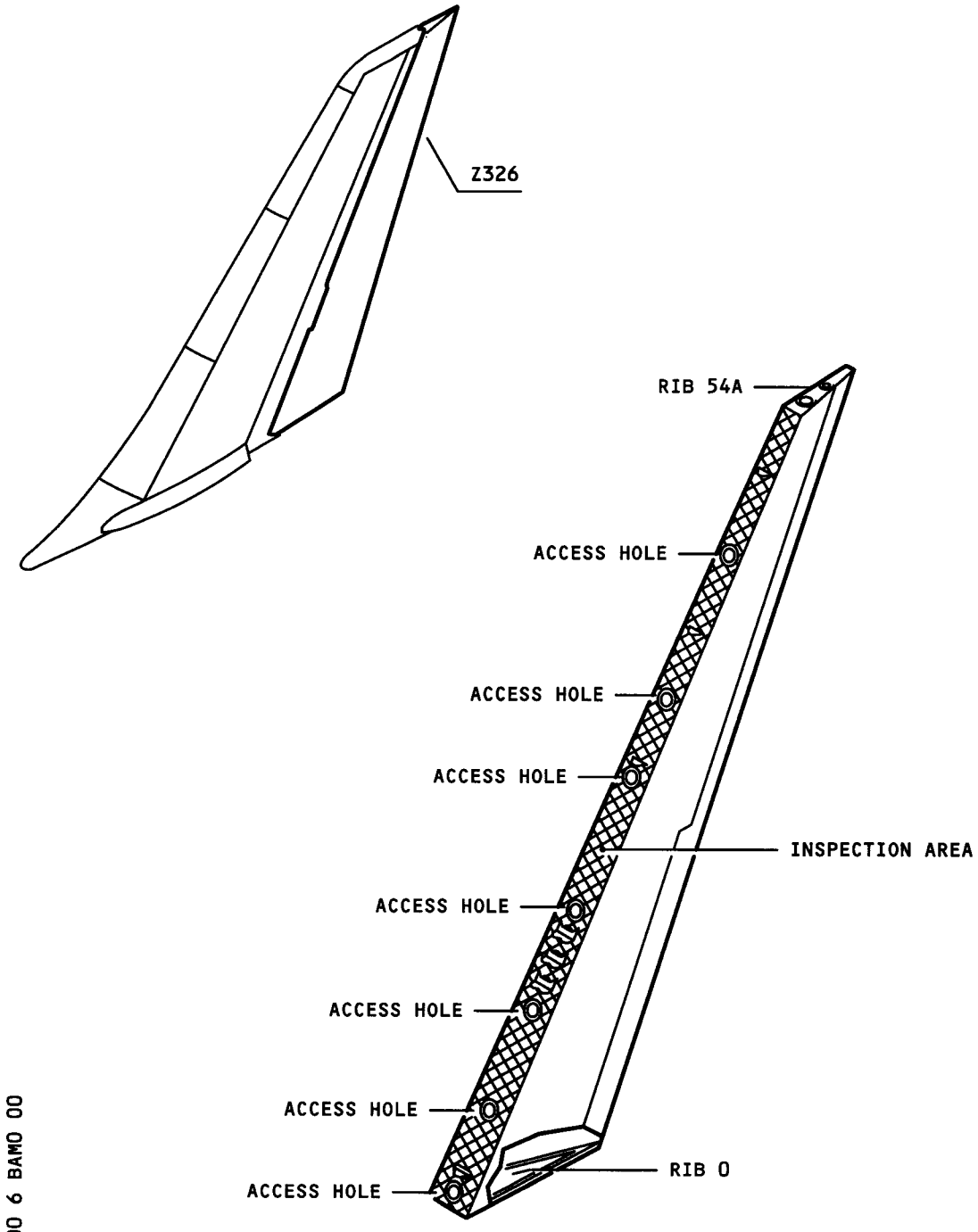
(d)Inspect trailing edge for security of attachment.

(e)Inspect lightning protection components and bonding straps for good condition and security of attachment.

(3)Close-Up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(b)Return horizontal and vertical stabilizers to operating condition



BM6 55 40 00 6 BAM0 00

Rudder Inspection
Figure 601

(Ref. 55-00-00, P. Block 301).

(c)Remove access platform.

RUDDER SPAR BOX - DESCRIPTION AND OPERATION

1. General

   A. The rudder spar box is the main structural component of the rudder and all other components are attached to it.

   B. The rudder tip and leading edge are attached by screws to the rudder spar and to RIB54A.

** ON CARBON-FIBER RUDDER SERIAL NO. 1005-1034

2. Description (Ref. Fig. 001, 002)

** ON CARBON-FIBER RUDDER SERIAL NO. 1035 AND SUBSEQUENT

2. Description (Ref. Fig. 003, 004)

R **ON A/C 106-106,

RUDDER SPAR BOX - DESCRIPTION AND OPERATION

1. General

   A. The rudder spar box is the main structural component of the rudder and all other components are attached to it.

   B. The rudder tip and leading edge are attached by screws to the rudder spar and to RIB54A.

** ON CARBON-FIBER RUDDER SERIAL NO. 1005-1034

2. Description (Ref. Fig. 002)

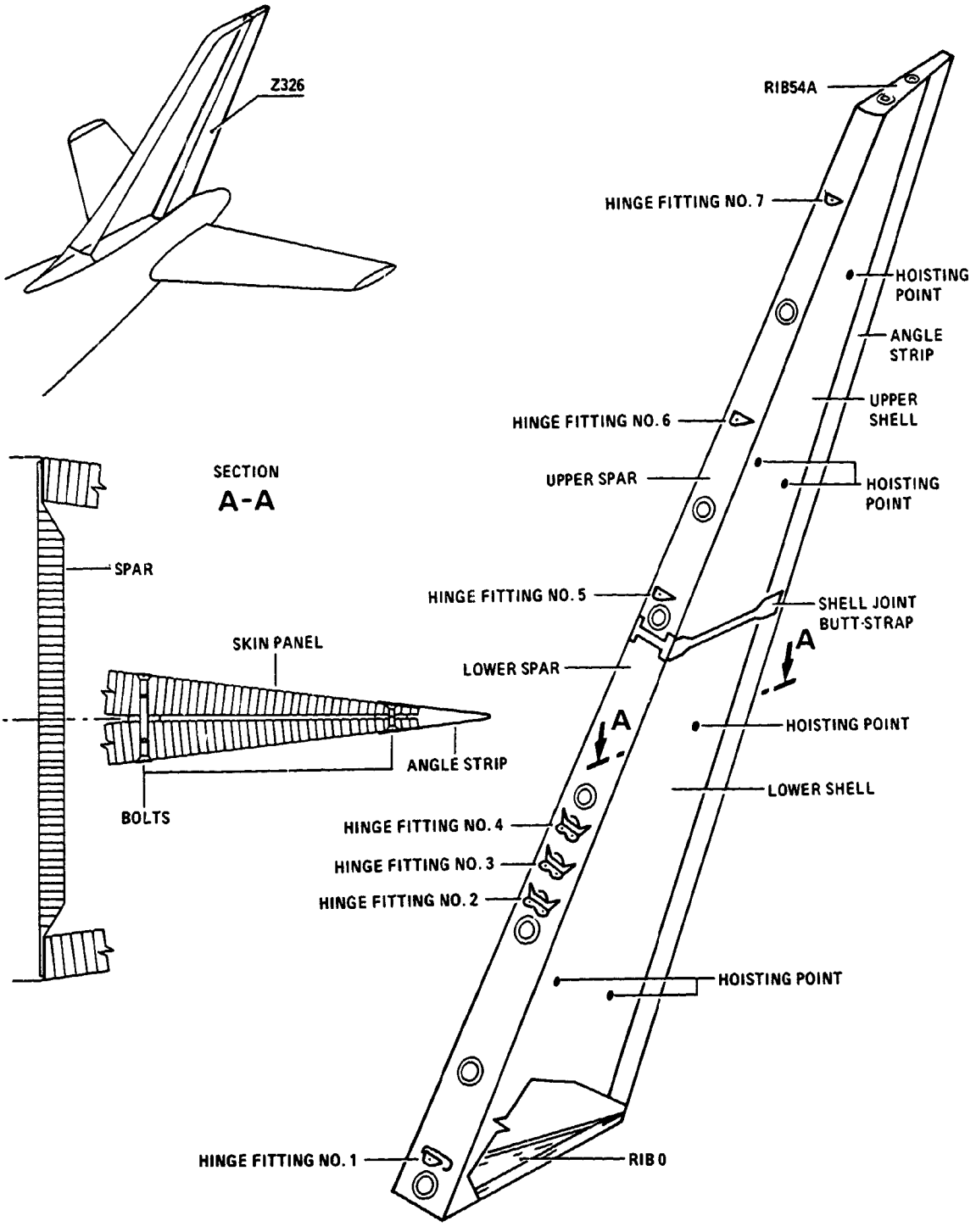
** ON CARBON-FIBER RUDDER SERIAL NO. 1035 AND SUBSEQUENT

2. Description (Ref. Fig. 004)

R **ON A/C 001-005, 102-105, 107-200,

R **ON A/C 106-106,

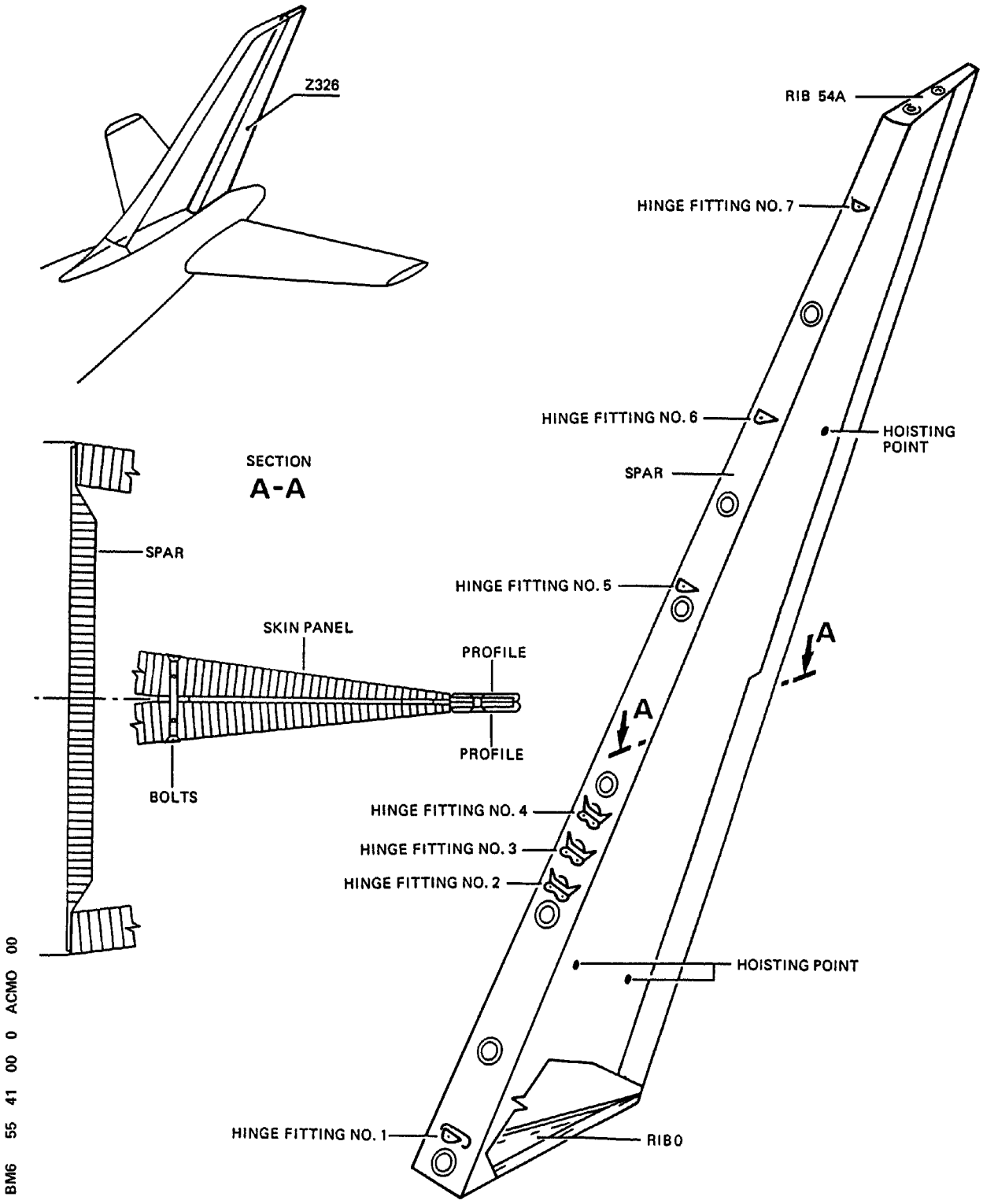
R **ON A/C 001-005, 102-105, 107-200,



Rudder Spar-Box
Figure 001

TO BE ISSUED LATER

Rudder Spar-Box
Figure 002



Rudder Spar-Box
Figure 003

TO BE ISSUED LATER

Rudder Spar-Box
Figure 004

** ON CARBON-FIBER RUDDER SERIAL NO. 1005-1034

A. The rudder spar box comprises two triangular-section shells that are connected by butt-straps and bolts just below hinge no. 5. Each shell comprises a spar, two skin panels, an angle strip and one rib. RIB0 is a triangular panel screwed to the skin panels and spar at the base of the lower shell. RIB54A is made from aluminum alloy and is located at the top of the upper shell. The flanges of RIB54A provide the attachment of the rudder tip.

B. The skin panels, spars and RIB0 are constructed from honeycomb core covered with laminations of resin-fiber composites.

C. The spars are screwed to the skin panels and provide the location for the hinge fittings (Ref. 55-46-00). Lightening holes are provided in each spar. The skin panels are joined at the trailing edge by bolts and an aluminum alloy angle-strip which is bolted to the trailing edge.

D. Hoist fittings are located in the left-hand and right-hand skin panels of each shell.

** ON CARBON-FIBER RUDDER SERIAL NO. 1035 AND SUBSEQUENT

A. The rudder spar box is a single triangular-section shell comprising a spar, two skin panels, an angle strip and two ribs. RIB0 is a triangular panel riveted to the skin panels and spar at the base of the shell. RIB54A is made from aluminum alloy and is located at the top of the shell. The flanges of RIB54A provide the attachment of the rudder tip.

B. The skin panels, spars and RIB0 are constructed from honeycomb core covered with laminations of resin-fiber composites.

C. The spar is riveted to the skin panels and provides the location for the hinge fittings (Ref. 55-46-00). Lightening holes are provided in the spar. The skin panels are joined at the trailing edge by bolts and by rivets through aluminum alloy profiles which reinforce the trailing edge.

D. Hoist fittings are located in the left-hand and right-hand skin panels.

** ON ALL RUDDERS

E. Static dischargers are attached to the upper angle-strip to permit the discharge of static electricity (Ref. 23-60-00).

R **ON A/C 106-106,

** ON CARBON-FIBER RUDDER SERIAL NO. 1005-1034

A. The rudder spar box comprises two triangular-section shells that are connected by butt-straps and bolts just below hinge no. 5. Each shell comprises a spar, two skin panels, an angle strip and one rib. RIBOis a triangular panel screwed to the skin panels and spar at the base of the lower shell. RIB54A is made from aluminum alloy and is located at the top of the upper shell. The flanges of RIB54A provide the attachment of the rudder tip.

B. The skin panels, spars and RIBO are constructed from honeycomb core covered with laminations of resin-fiber composites.

C. The spars are screwed to the skin panels and provide the location for the hinge fittings (Ref. 55-46-00). Lightening holes are provided in each spar. The skin panels are joined at the trailing edge by bolts and an aluminum alloy angle-strip which is bolted to the trailing edge.

D. Hoist fittings are located in the left-hand and right-hand skin panels of each shell.

** ON CARBON-FIBER RUDDER SERIAL NO. 1035 AND SUBSEQUENT

A. The rudder spar box is a single triangular-section shell comprising a spar, two skin panels, an angle strip and two ribs. RIBO is a triangular panel riveted to the skin panels and spar at the base of the shell. RIB54A is made from aluminum alloy and is located at the top of the shell. The flanges of RIB54A provide the attachment of the rudder tip.

B. The skin panels, spars and RIBO are constructed from honeycomb core covered with laminations of resin-fiber composites.

C. The spar is riveted to the skin panels and provides the location for the hinge fittings (Ref. 55-46-00). Lightening holes are provided in the spar. The skin panels are joined at the trailing edge by bolts and by rivets through aluminum alloy profiles which reinforce the trailing edge.

D. Hoist fittings are located in the left-hand and right-hand skin panels.

** ON ALL RUDDERS

E. Static dischargers are attached to the upper angle-strip to permit the discharge of static electricity (Ref. 23-60-00).

F. Drain holes are located in the rudder spar-box and they prevent delamination at RIB 0 and rudder nose RIB 0. The first four hand holes, located between RIB 0 and RIB 5, are closed.

RUDDER SPAR BOX - DESCRIPTION AND OPERATION

1. General

A. The rudder spar box with integrated leading edge is the main structural component of the rudder

B. The rudder tip is attached by screws to the rudder spar and to RIB54A.

2. Description (Ref. Fig. 001)

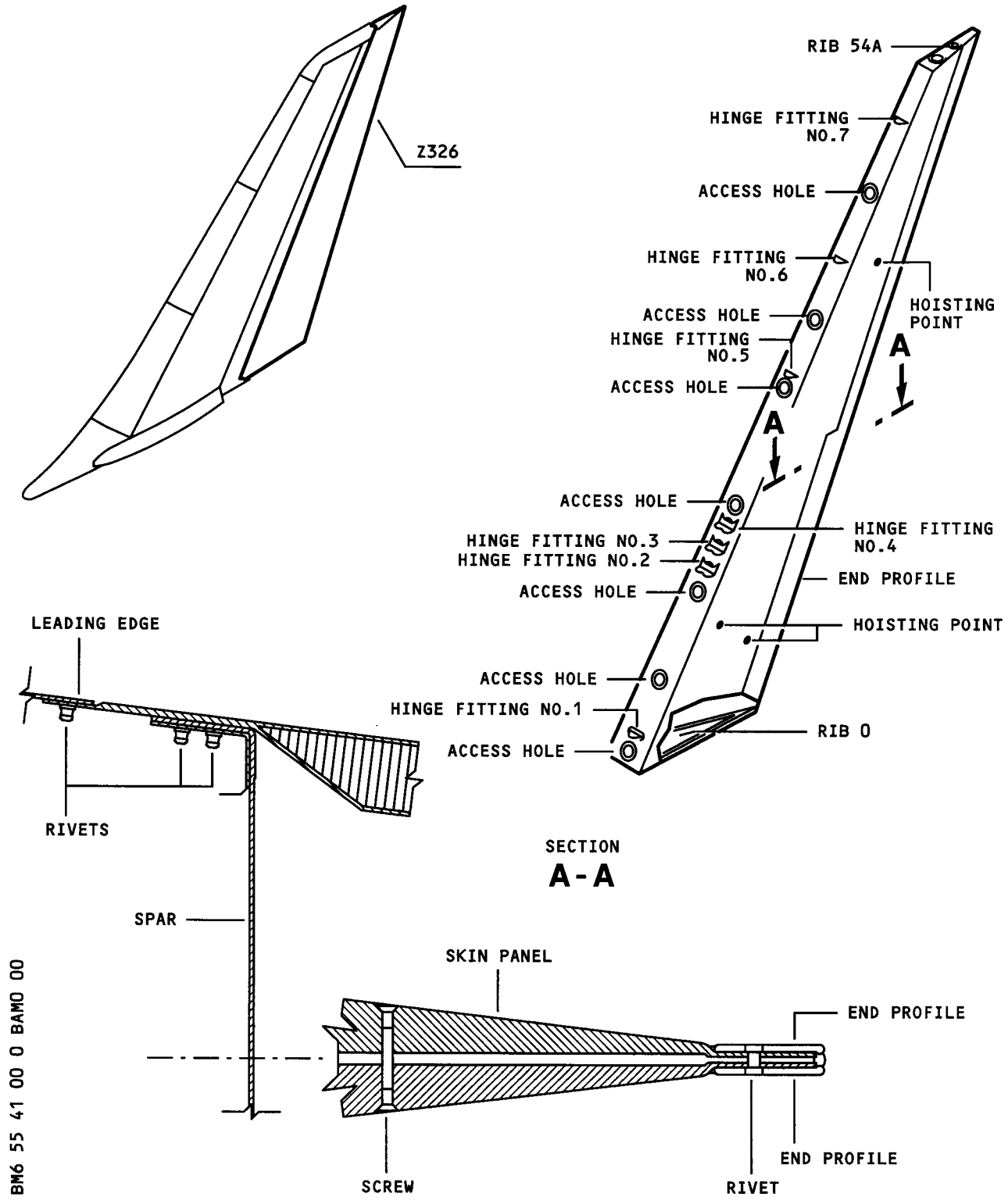
A. The rudder spar box is a single triangular-section shell comprising a spar, two skin panels, an angle strip , a rib and a leading edge. RIB0 is a triangular panel riveted to the skin panels and spar at the base of the shell. The flanges of the shell provide the attachment of the rudder tip.

B. The skin panels are constructed from honeycomb core covered with laminations of resin-fiber composites. Spar and RIB0 are monolithic parts.

C. The spar is riveted to the skin panels and provides the location for the hinge fittings (Ref. 55-46-00). Access holes are provided in the spar. The skin panels are joined at the trailing edge by bolts and by rivets through aluminum alloy profiles which reinforce the trailing edge.

D. Hoist fittings are located in the left-hand and right-hand skin panels.

E. Static dischargers are attached to the upper angle-strip to permit the discharge of static electricity (Ref. 23-60-00).



Rudder Spar-Box
Figure 001

RUDDER LEADING EDGE - DESCRIPTION AND OPERATION

1. General

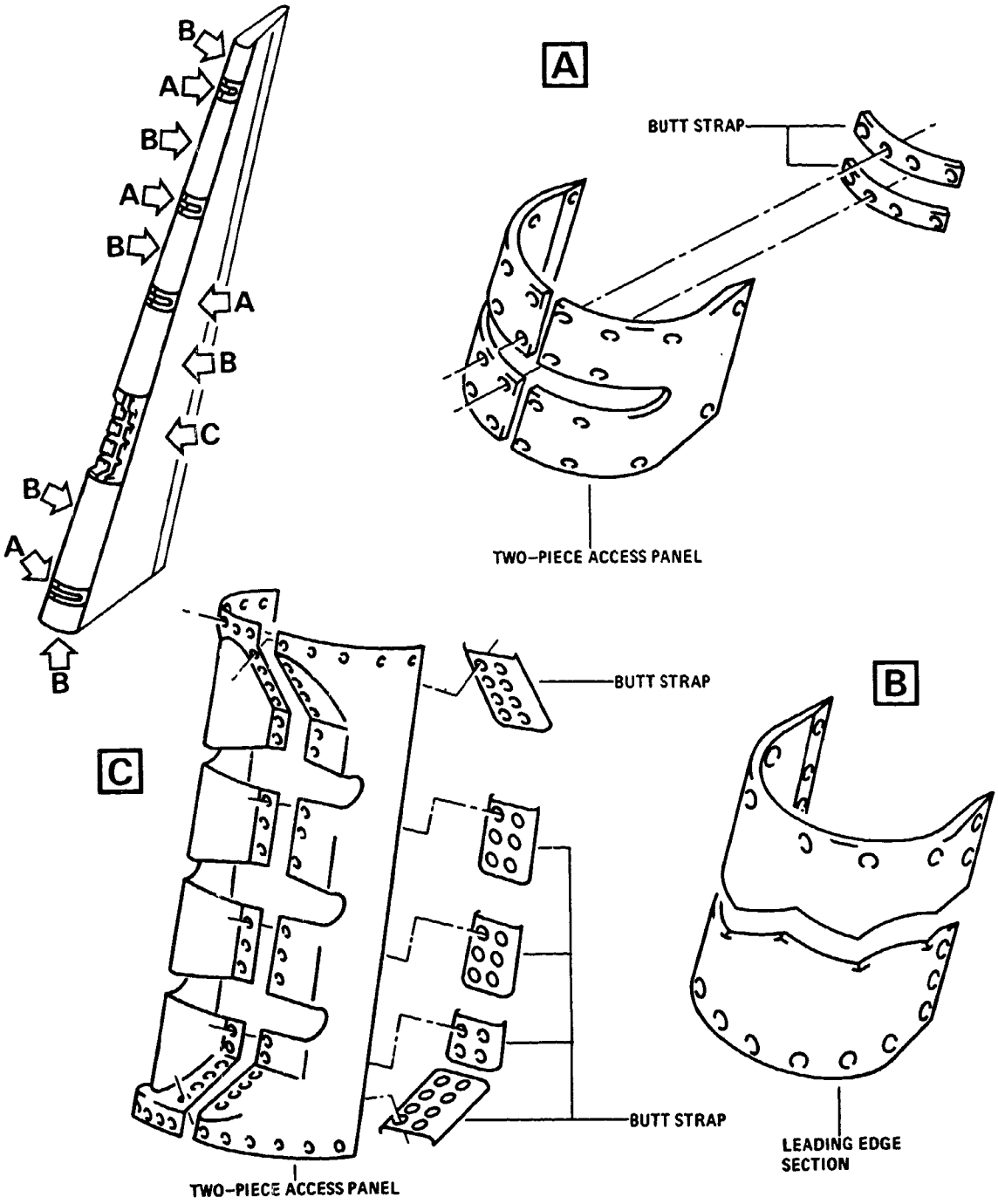
A. The rudder leading edge comprises six sections and five two-piece access panels. All sections and access panels are attached to the rudder skin panels.

2. Description (Ref. Fig. 001)

A. The rudder leading edge sections cover the areas between the rudder hinge fittings. Hinge fittings 1, 5, 6 and 7 are each covered by a two-piece access panel. Hinge fittings 2, 3 and 4 are covered by one large two-piece access panel.

B. Leading Edge Sections and Access Panels

(1) The rudder leading edge sections and access panels are made from honeycomb core sandwiched between laminations of resin-fiber composite. A protective foil is bonded to the inner surfaces, while the outer surfaces are primed and finished with a polyurethane-based paint. The two halves of each access panel are connected by light alloy butt straps.



Rudder Leading Edge
Figure 001

RUDDER LEADING EDGE - DESCRIPTION AND OPERATION

1. General

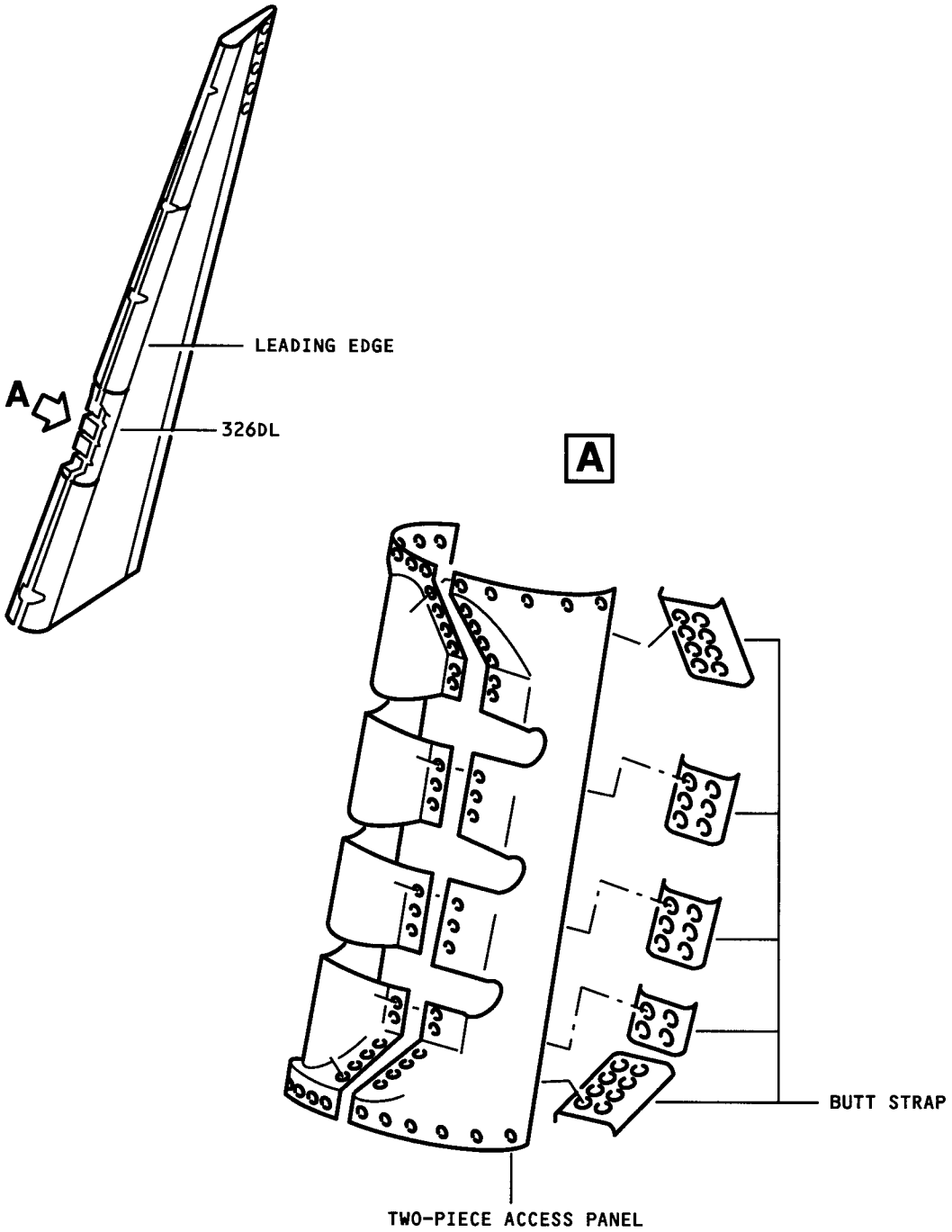
A. The rudder leading edge is the front fairing of the rudder. It has two access panels that can be removed to get access to the rudder attach fittings. Fastener attach the leading edge panel to the front of the rudder main stucture.

2. Description (Ref. Fig. 001)

A. The rudder leading edge has two access panels. You can remove the access panels to get access to the rudder attach fittings. Fasteners attach the sections to the skin panels of the rudder main structure.

B. The Leading Edge is a CFRP - Monolithic part. It is protected with paint coat on the outer surface.

C. The access panel has two halves.



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Rudder Leading Edge
Figure 001

RUDDER LEADING EDGE SECTIONS - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 7-16 m (23-53 ft.)
B.	Nonmetallic Scraper
C.	Torque Wrench, 0.5 m.daN (44.3 lbf.in.)
D. Material No. 05-013	Special Materials (Ref. 20-31-00)
E. Material No. 09-013	Sealants (Ref. 20-31-00)

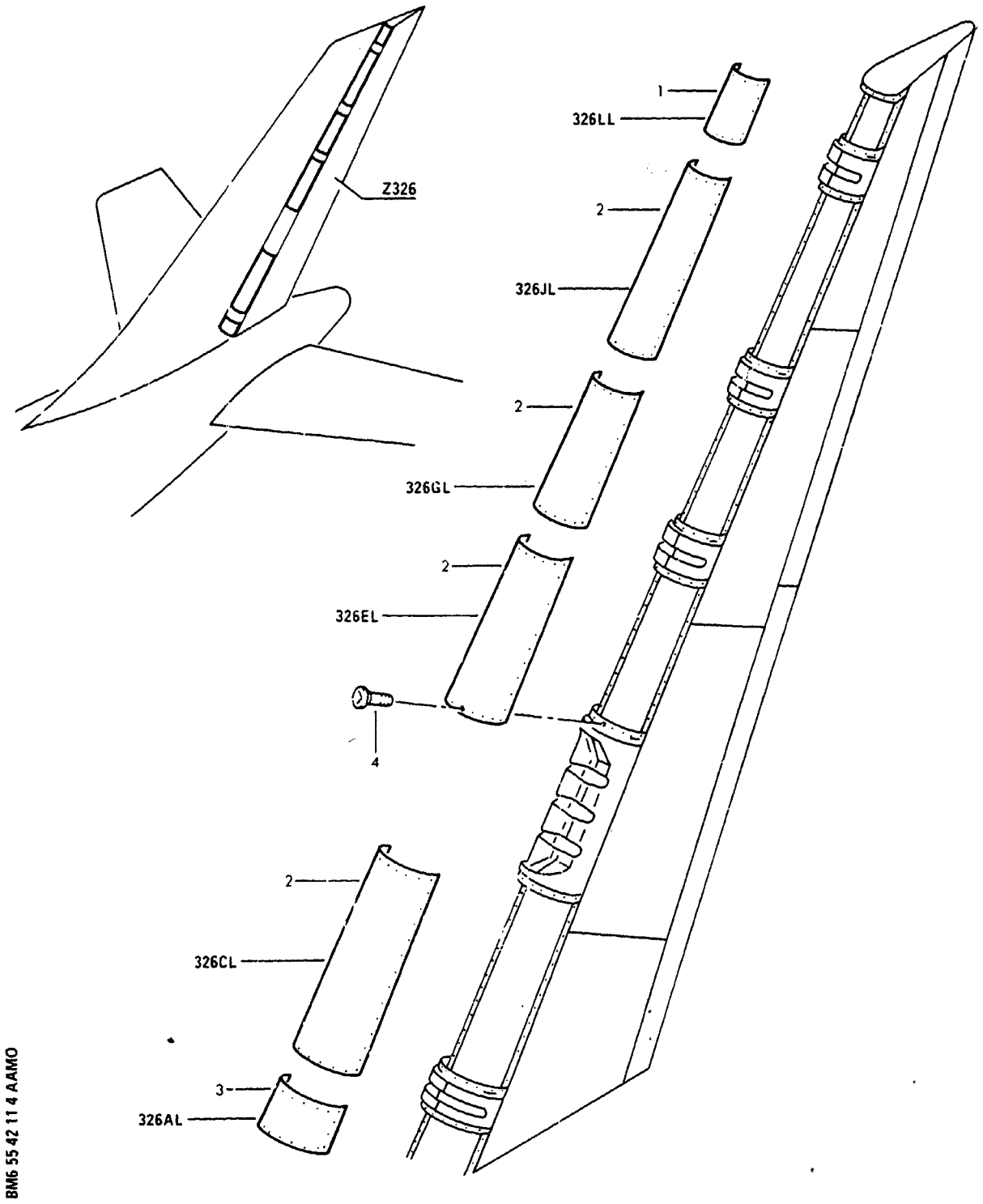
Referenced Procedures

- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove or open trailing edge access panels as required (Ref. 55-33-13, P. Block 401).

B. Removal (Ref. Fig. 401)
(1)Remove screws (4) and rudder leading edge sections (1, 2, 3).



Leading Edge Panels
Figure 401

C. Preparation for Installation
(1)Check sealant (Mat. No. 09-013) on mating surfaces of rudder spar box for good condition, renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of leading edge sections.

D. Installation (Ref. Fig. 401)
(1)Position leading edge sections (1, 2, 3) and install screws (4).
(2)TORQUE screws (4) to between 0.15 and 0.25 m.daN (13.3 and 22.1 lbf.in.).
(3)Fill gaps between leading edge sections and access panels, and gaps between leading edge sections and spar box skin panels with sealant (Mat. No. 09-013) (Ref. 51-76-10, P. Block 801).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Close or install trailing edge access panels (Ref. 55-33-13, P. Block 401).
(3)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(4)Remove access platform.

RUDDER LEADING EDGE ACCESS PANELS - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 7 - 16 m (23 - 53 ft.)
B.	Nonmetallic Scraper
C.	Torque Wrench, 0.5 m.daN (44.3 lbf.in.)
D. Material No. 05-013	Special Materials (Ref. 20-31-00)
E. Material No. 09-013	Sealants (Ref. 20-31-00)

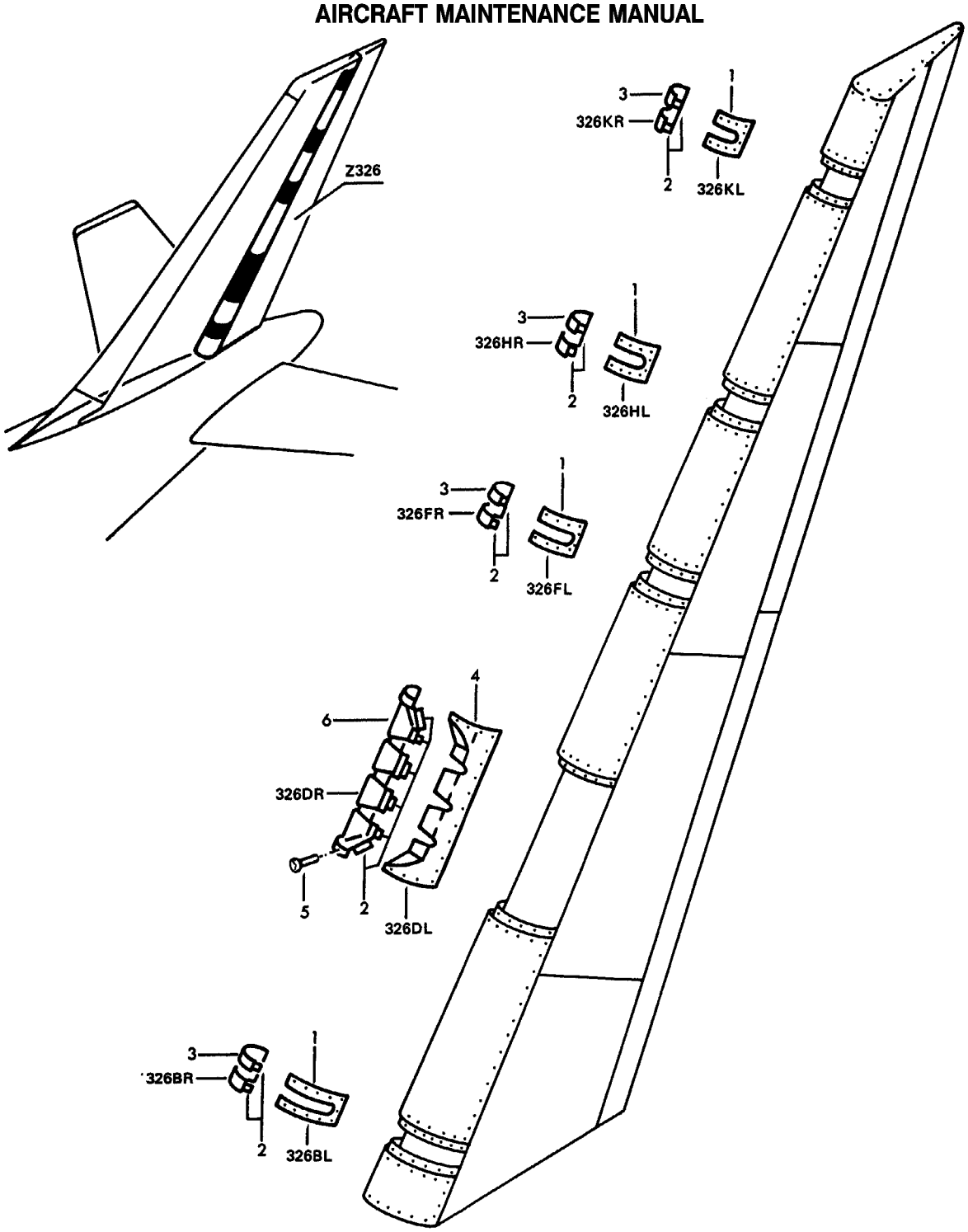
Referenced Procedures

- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove or open trailing edge access panels as required (Ref. 55-33-13, P. Block 401).

B. Removal (Ref. Fig. 401)
(1)Remove screws (5) and LH access panels (1, 4).
(2)Remove screws (5) and RH access panels (3, 6) together with butt straps (2).



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Leading Edge Access Panels
Figure 401

C. Preparation for Installation
(1)Check sealant (Mat. 09-013) on mating surfaces of rudder spar box for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of access panels (1, 3, 4, 6) as necessary.

D. Installation (Ref. Fig. 401)
CAUTION : MAKE CERTAIN THERE IS NO CHAFING BETWEEN RUDDER SERVO ACTUATORS AND LEADING EDGE PANELS.
(1)Position RH access panels (3, 6) together with butt straps (2) and install screws (5).
(2)Position LH access panels (1, 4) and install screws (5).
(3)TORQUE screws (5) to between 0.15 and 0.25 m.daN (13.3 and 22.1 lbf.in.).
(4)Fill gaps between leading edge sections and access panels, between leading edge access panels and spar box skin panels and between LH and RH leading edge access panels, with sealant (Mat. No. 09-013) (Ref. 51-76-10, P. Block 801).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Close or install trailing edge access panels (Ref. 55-33-13, P. Block 401).
(3)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(4)Remove access platform.

RUDDER LEADING EDGE ACCESS PANELS - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 7 - 16 m (23 - 53 ft.)
B.	Nonmetallic Scraper
C.	Torque Wrench, 0.5 m.daN (44.3 lbf.in.)
D. Material No. 05-013	Special Materials (Ref. 20-31-00)
E. Material No. 09-013	Sealants (Ref. 20-31-00)

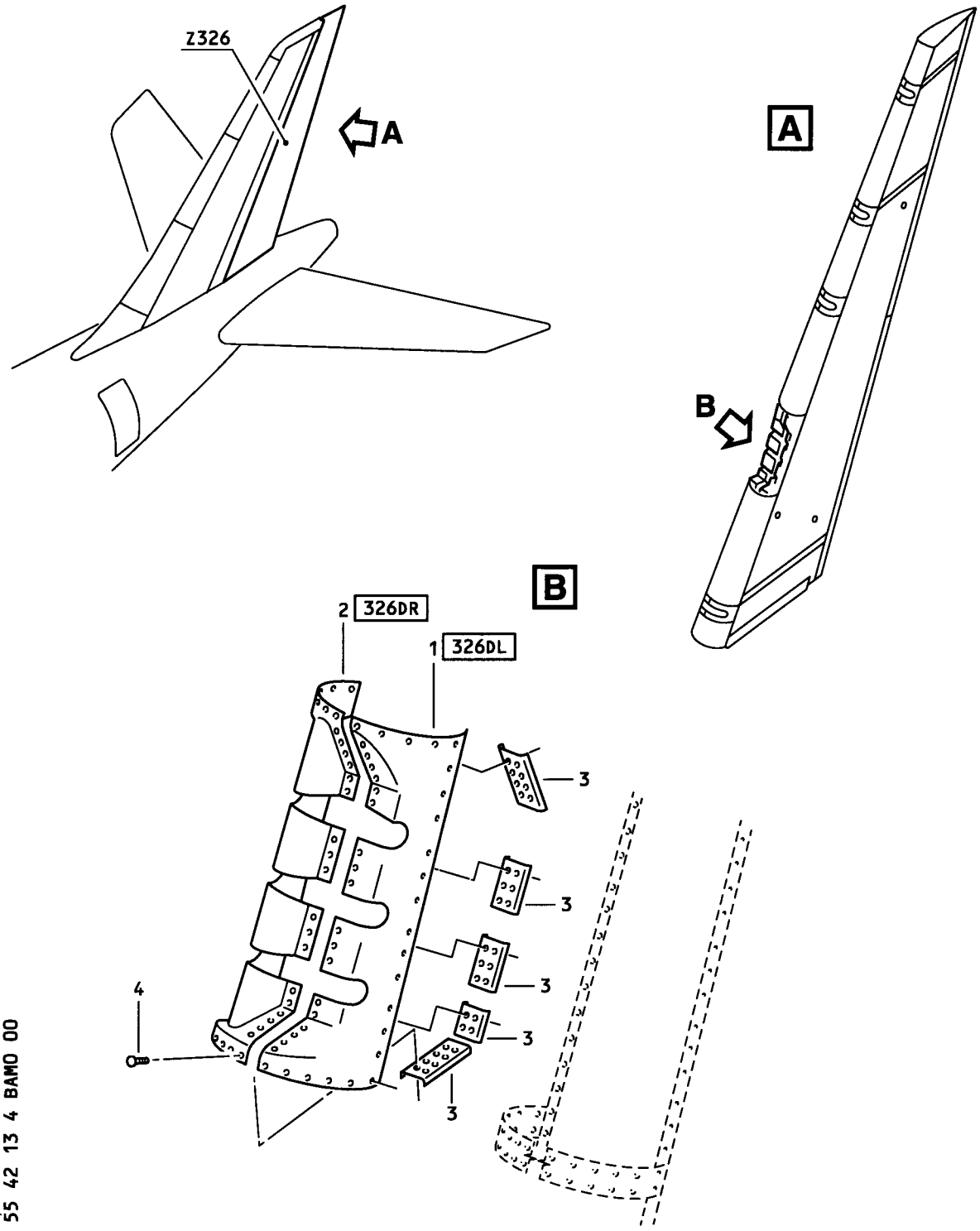
Referenced Procedures

- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove or open trailing edge access panels as required (Ref. 55-33-13, P. Block 401).

B. Removal (Ref. Fig. 401)
(1)Remove screws (4) and LH access panel (1).
(2)Remove screws (4) and RH access panel (2) together with butt straps (3).



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Leading Edge Access Panels
Figure 401

C. Preparation for Installation
(1)Check sealant (Mat. 09-013) on mating surfaces of rudder spar box for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).
(2)Apply separator agent (Mat. No. 05-013) to mating surfaces of access panels (1, 2) as necessary.

D. Installation (Ref. Fig. 401)
CAUTION : MAKE CERTAIN THERE IS NO CHAFING BETWEEN RUDDER SERVO ACTUATORS AND LEADING EDGE PANELS.
(1)Position RH access panel (2) together with butt straps (3) and install screws (4).
(2)Position LH access panel (1) and install screws (4).
(3)TORQUE screws (4) to between 0.15 and 0.25 m.daN (13.3 and 22.1 lbf.in.).
(4)Fill gaps between leading edge sections and access panels, between leading edge access panels and spar box skin panels and between LH and RH leading edge access panels, with sealant (Mat. No. 09-013) (Ref. 51-76-10, P. Block 801).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Close or install trailing edge access panels (Ref. 55-33-13, P. Block 401).
(3)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(4)Remove access platform.

RUDDER TIP - DESCRIPTION AND OPERATION

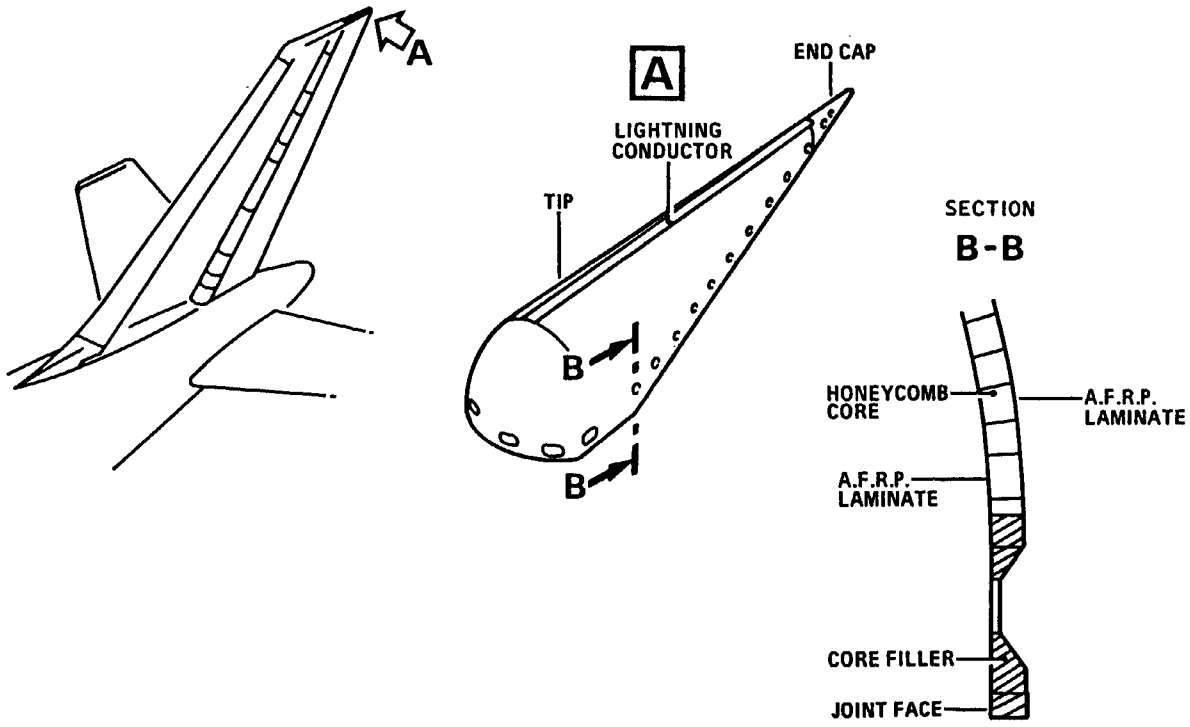
1. General

A. The rudder tip assembly is the uppermost fairing of the rudder. It is attached to leading edge panel 326LL and rudder RIB54A. The tip assembly comprises a tip and an end cap.

2. Description (Ref. Fig. 001)

A. The rudder tip is made from a honeycomb core bonded between layers of resin-fiber composite. An aluminum alloy lightning conductor is bonded along the top of the tip.

B. The end cap is an aluminum alloy casting.



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Rudder Tip
Figure 001

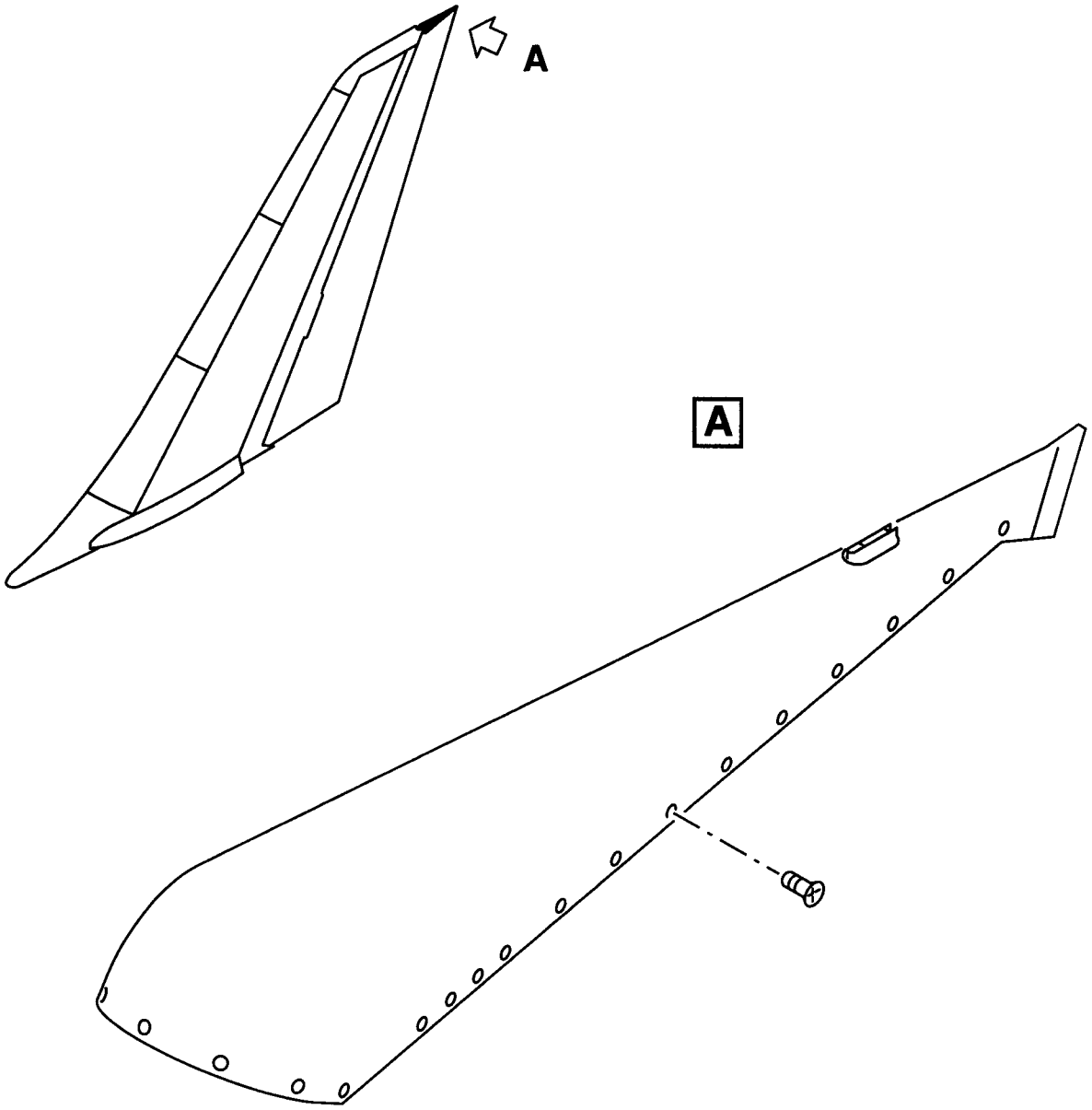
RUDDER TIP - DESCRIPTION AND OPERATION

1. General

A. The rudder tip is the uppermost fairing of the rudder and is attached to rudder shell.

2. Description (Ref. Fig. 001)

A. The rudder tip is made from sheet metal and is attached to the rudder with screws.



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Rudder Tip
Figure 001

RUDDER TIP - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 15 m (49 ft.)
B.	Torque Wrench, 0.5 m.daN (44.3 lbf.in.)
C.	Nonmetallic Scraper
D. Material No. 05-002	Special Materials (Ref. 20-31-00)
E. Material No. 05-013	Special Materials (Ref. 20-31-00)
F. Material No. 09-013	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 20-28-11, P. Block 1	Electrical Bonding
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-34-11, P. Block 401	Vertical Stabilizer Tip

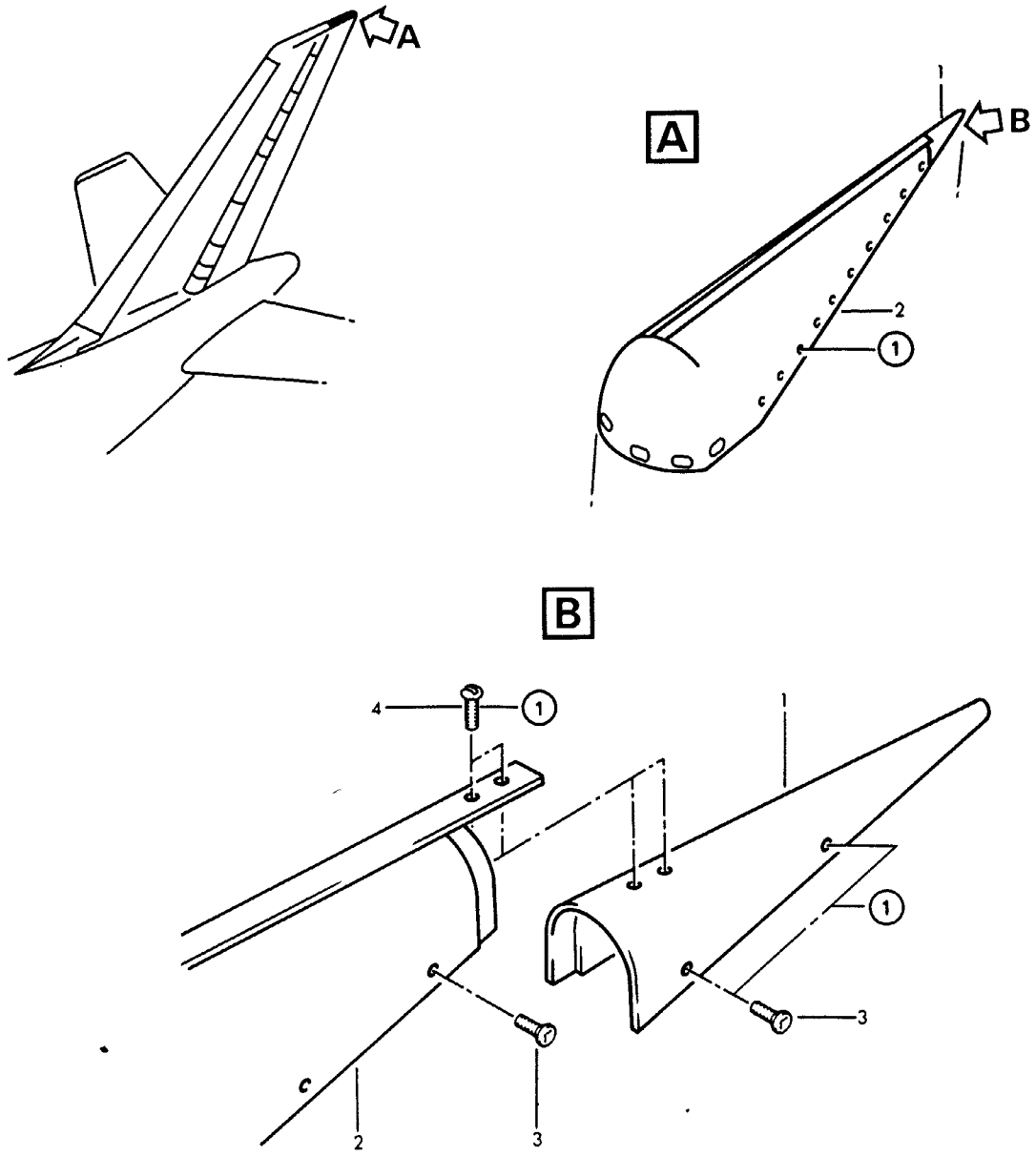
2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove vertical stabilizer tip end-piece 324BT (Ref. 55-34-11, P. Block 401).

B. Removal (Ref. Fig. 401)
(1)Remove screws (3, 4), tip (2) and end-cap (1).

C. Preparation for Installation
(1)Apply separator agent (Mat. No. 05-013) to mating surfaces of rudder tip and end-cap as necessary.
(2)Check sealant (Mat. No. 09-013) on mating surfaces of rudder spar box for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).

D. Installation (Ref. Fig. 401)
(1)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (3) except at electrical bonding points.
(2)Position rudder tip (2) and end-cap (1) and install screws (3, 4). For electrical bonding refer to 20-28-11, P. Block 1.
(3)TORQUE screws (3) to between 0.15 and 0.25 m.daN (13.3 and 22.1 lbf.in.).
(4)Fill gaps between tip and spar box with sealant (Mat. No. 09-013).



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ELECTRICAL BONDING POINTS

(1)

Rudder Tip
Figure 401

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Install vertical stabilizer tip end-piece 324BT (Ref. 55-34-11, P. Block 401).
(3)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(4)Remove access platform.

RUDDER TIP - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 15 m (49 ft.)
B.	Torque Wrench, 0.5 m.daN (44.3 lbf.in.)
C.	Nonmetallic Scraper
D. Material No. 05-002	Special Materials (Ref. 20-31-00)
E. Material No. 05-013	Special Materials (Ref. 20-31-00)
F. Material No. 09-013	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 20-28-11, P. Block 1	Electrical Bonding
- 51-76-10, P. Block 801	Repair of Sealing
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-34-11, P. Block 401	Vertical Stabilizer Tip

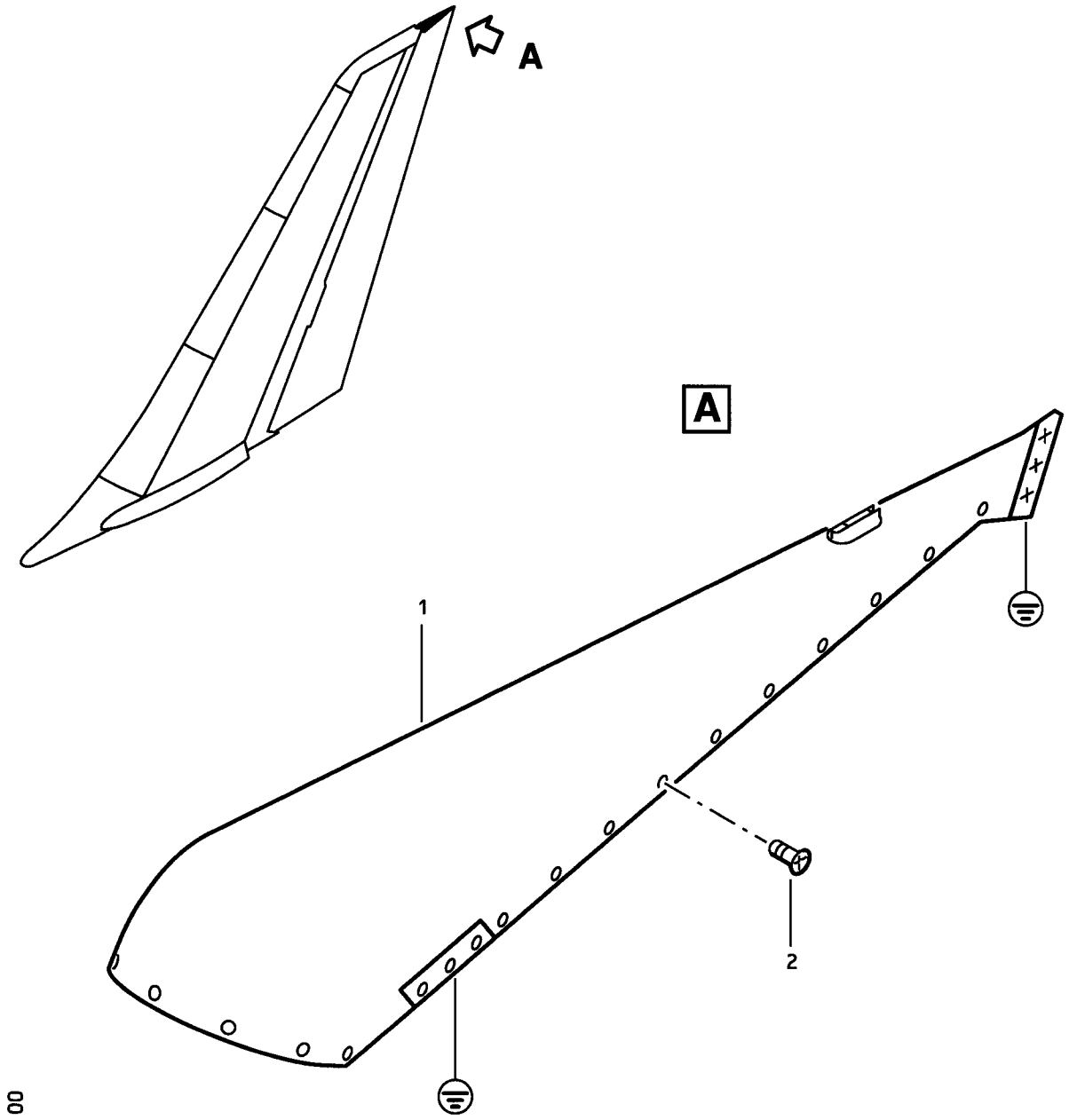
2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove vertical stabilizer tip end-piece 324BT (Ref. 55-34-11, P. Block 401).

B. Removal (Ref. Fig. 401)
(1)Remove screws (2) and tip (1).

C. Preparation for Installation
(1)Apply separator agent (Mat. No. 05-013) to mating surfaces of rudder tip and end-cap as necessary.
(2)Check sealant (Mat. No. 09-013) on mating surfaces of rudder spar box for good condition and renew as necessary (Ref. 51-76-10, P. Block 801).

D. Installation (Ref. Fig. 401)
(1)Apply corrosion-preventive paste (Mat. No. 05-002) to screws (2) except at electrical bonding points.
(2)Position rudder tip (1) and install screws (2).
For electrical bonding refer to 20-28-11, P. Block 1.
(3)TORQUE screws (2) to between 0.15 and 0.25 m.daN (13.3 and 22.1 lbf.in.).
(4)Fill gaps between tip and spar box with sealant (Mat. No. 09-013).



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ELECTRICAL BONDING POINT

Rudder Tip
Figure 401

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.

RUDDER ATTACH FITTINGS - DESCRIPTION AND OPERATION

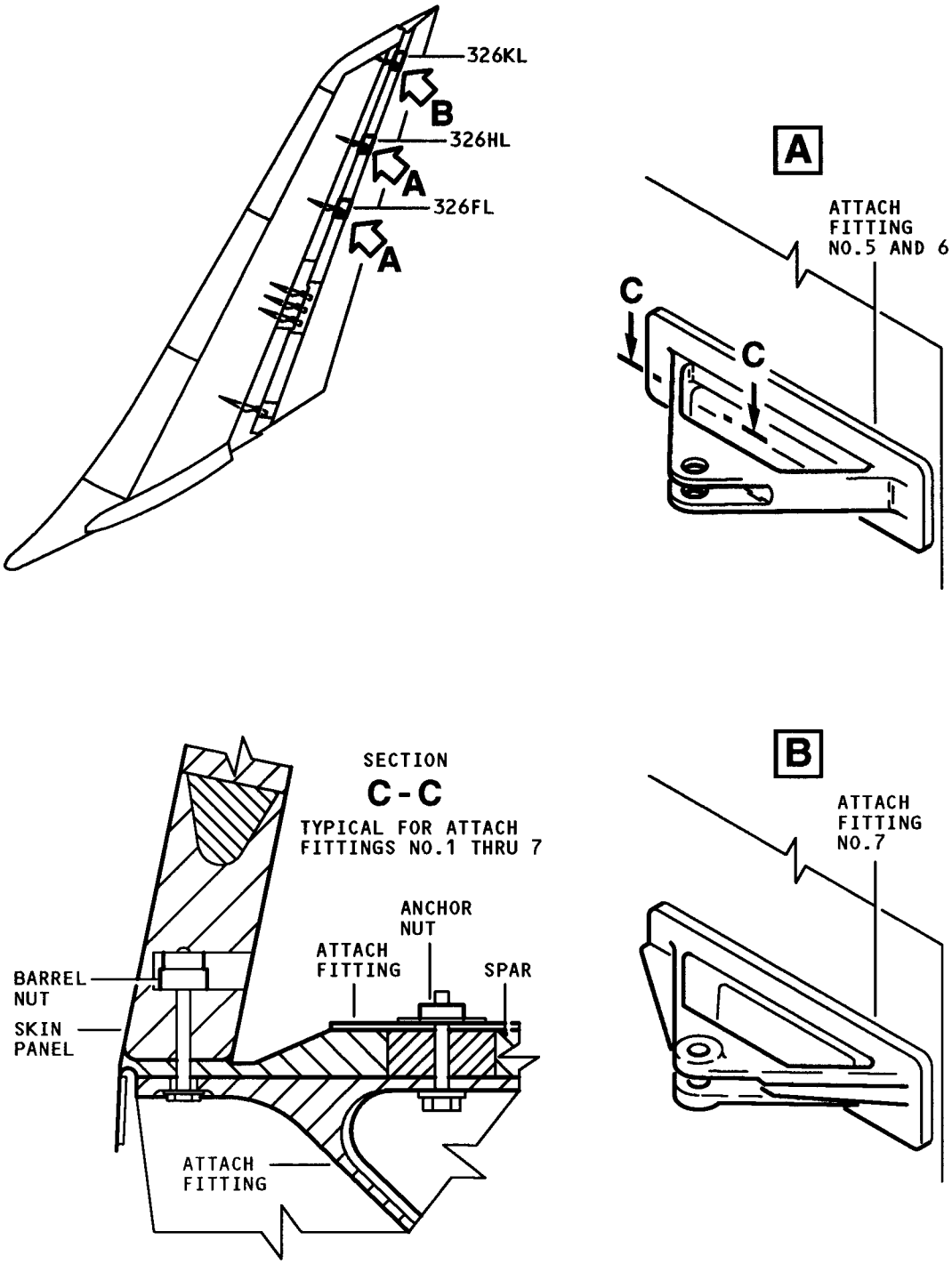
1. General

A. Attach fittings are located along the front spar of the rudder, to attach the rudder to the rear spar of the vertical stabilizer via the hinge arms. The attach fittings are located as follows:
- Attach Fitting No. 1 at STA060 (Access panel 326BR / 326BL)
- Attach Fitting No. 2 at STA270 (Access panel 326DR / 326DL)
- Attach Fitting No. 3 at STA300 (Access panel 326DR / 326DL)
- Attach Fitting No. 4 at STA330 (Access panel 326DR / 326DL)
- Attach Fitting No. 5 at STA529 (Access panel 326FR / 326FL)
- Attach Fitting No. 6 at STA679 (Access panel 326HR / 326HL)
- Attach Fitting No. 7 at STA869 (Access panel 326KR / 326KL)

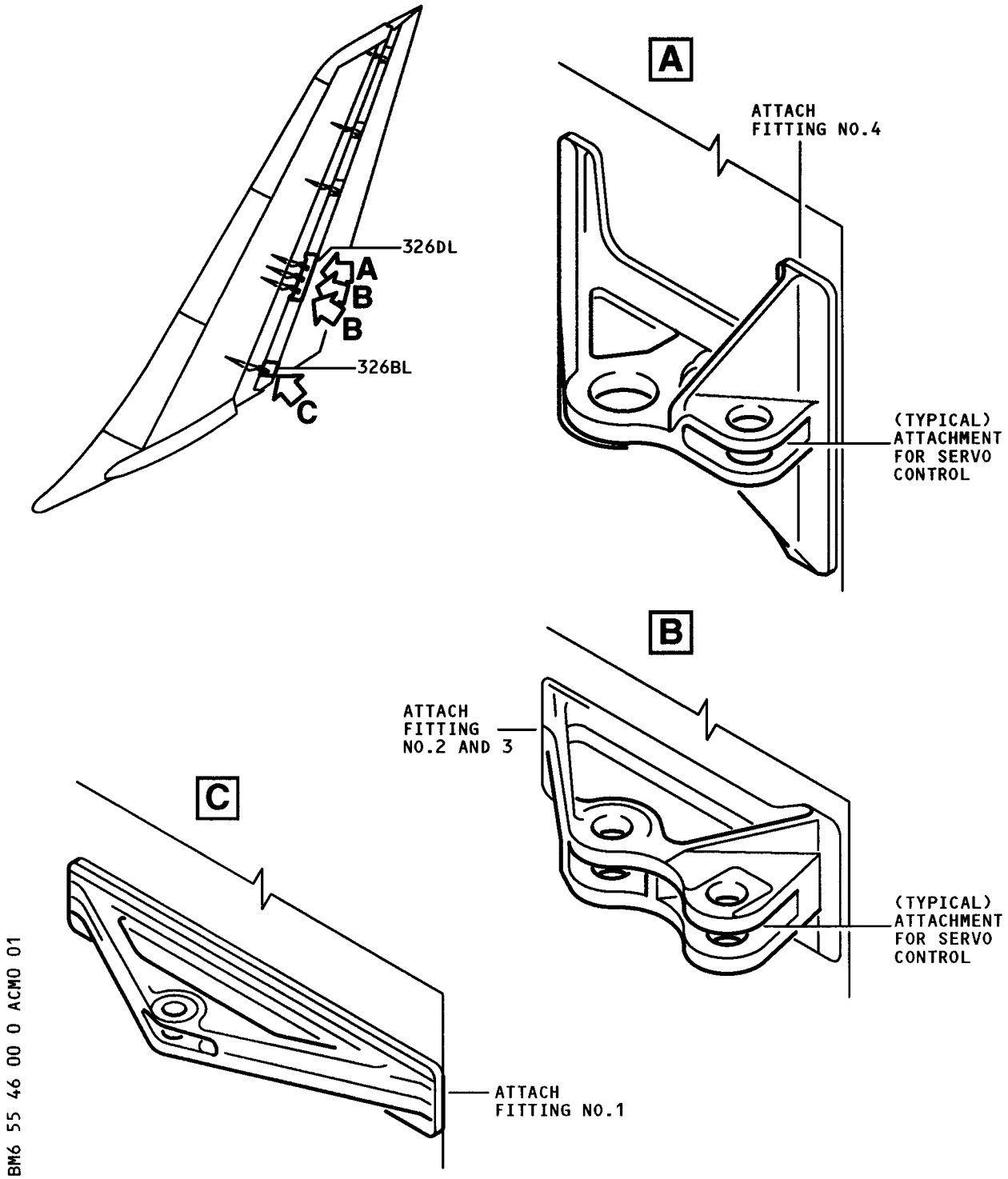
B. Attach fittings no. 2, 3 and 4 also provide attachment for the rudder servo controls.

2. Description (Ref. Fig. 001, 002)

A. The attach fittings are milled from aluminum alloy and are attached to the spars and skin panels by bolts. Hinge-bolts through the attach fittings secure the rudder to the vertical stabilizer. The attach points in the skin panels are made of solid composite materials in place of honeycomb core. Cut-outs in the inside of the skin panels provide access to the barrel-nuts and retainers that secure the attach bolts. At the attach points in the spar, the honeycomb is reinforced with a core-filler. A backing plate, with anchor nuts, is attached to the rear surface of the spar to secure the attach bolts.



Rudder Attach Fittings No. 5, 6 and 7
Figure 001



Rudder Attach Fittings No. 1, 2, 3 and 4
Figure 002

RUDDER ATTACH FITTINGS - DESCRIPTION AND OPERATION

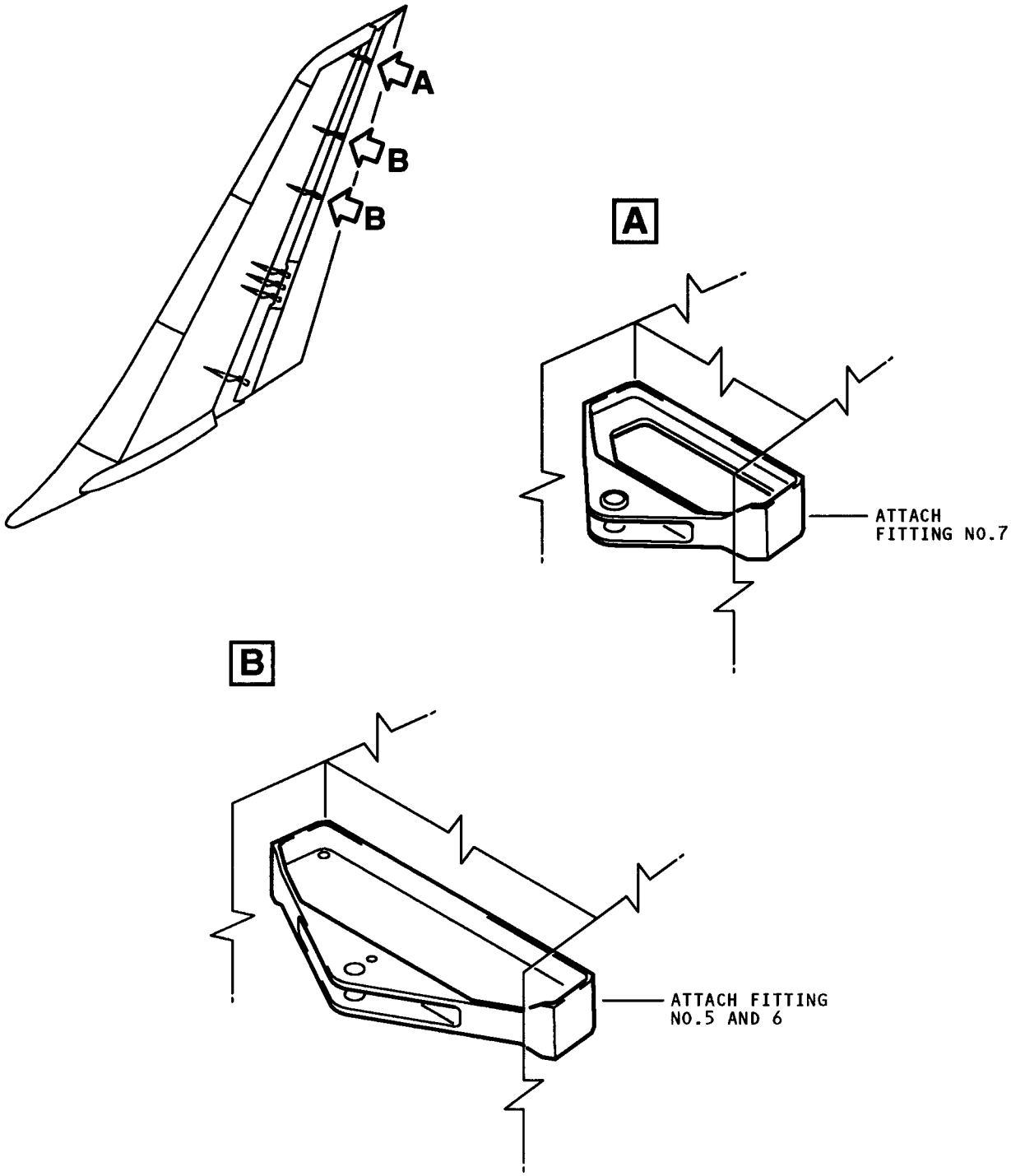
1. General

A. Attach fittings are located along the front spar of the rudder, to attach the rudder to the rear spar of the vertical stabilizer via the hinge arms. The attach fittings are located as follows:
- Attach Fitting No. 1 at STA060
- Attach Fitting No. 2 at STA270 (Access panel 326 DR / 326 DL)
- Attach Fitting No. 3 at STA300 (Access panel 326 DR / 326 DL)
- Attach Fitting No. 4 at STA330 (Access panel 326 DR / 326 DL)
- Attach Fitting No. 5 at STA529
- Attach Fitting No. 6 at STA679
- Attach Fitting No. 7 at STA869

B. Attach fittings no. 2, 3 and 4 also provide attachment for the rudder servo controls.

2. Description (Ref. Fig. 001, 002)

A. The attach fittings are milled from aluminum alloy and are attached to the spars and skin panels by fasteners. Hinge-bolts through the attach fittings secure the rudder to the vertical stabilizer. The attach points in the spar are made of solid composite materials.



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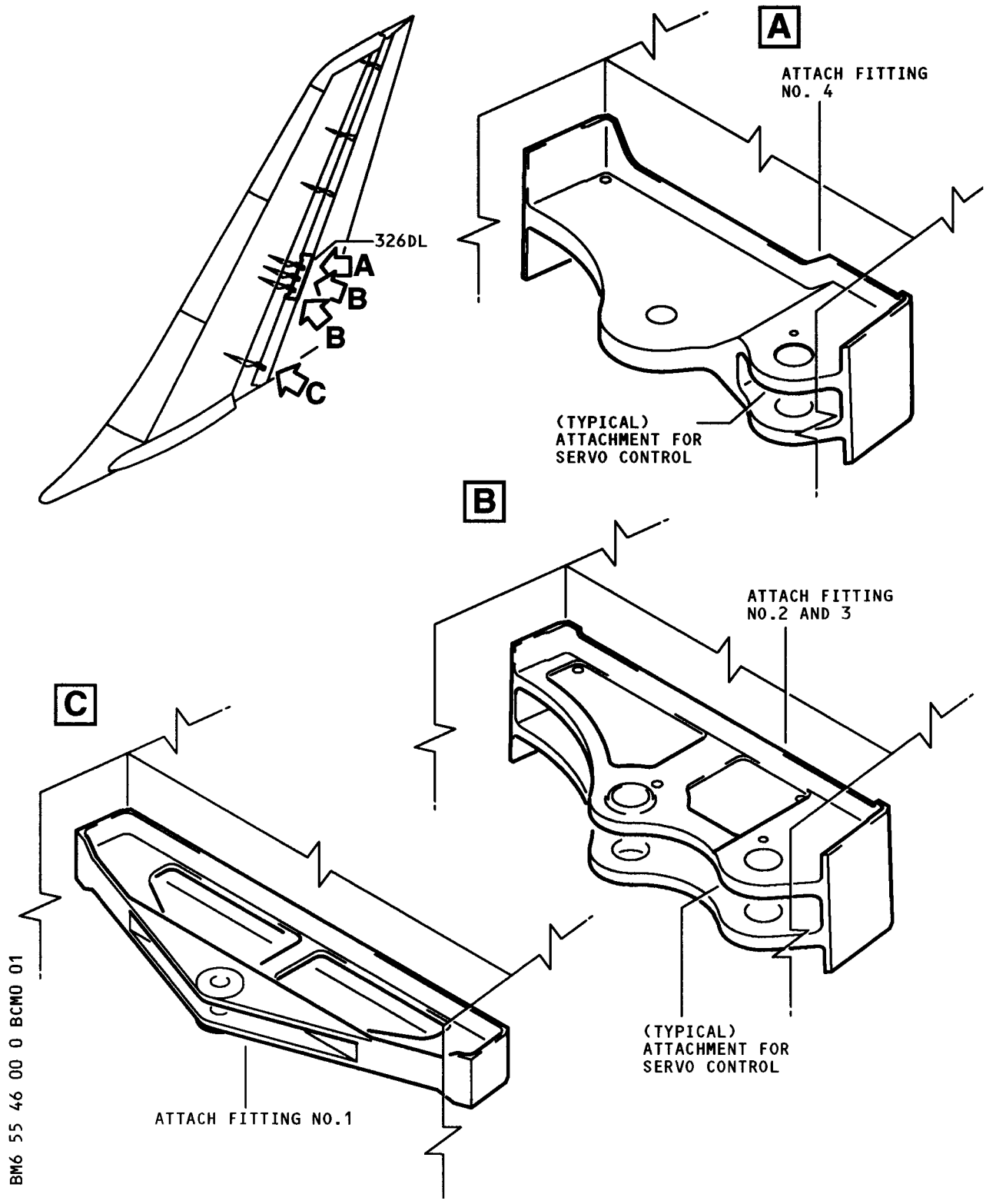
Rudder Attach Fittings No. 5, 6 and 7
Figure 001



Rudder Attach Fittings No. 1, 2, 3 and 4
Figure 002

RUDDER ATTACH FITTINGS - INSPECTION/CHECK

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

CAUTION : PERCENTAGE (%) OF ALLOWABLE DAMAGE IS ALWAYS RELATED TO THE NOMINAL MATERIAL THICKNESS AS SPECIFIED IN SRM (STRUCTURAL REPAIR MANUAL).

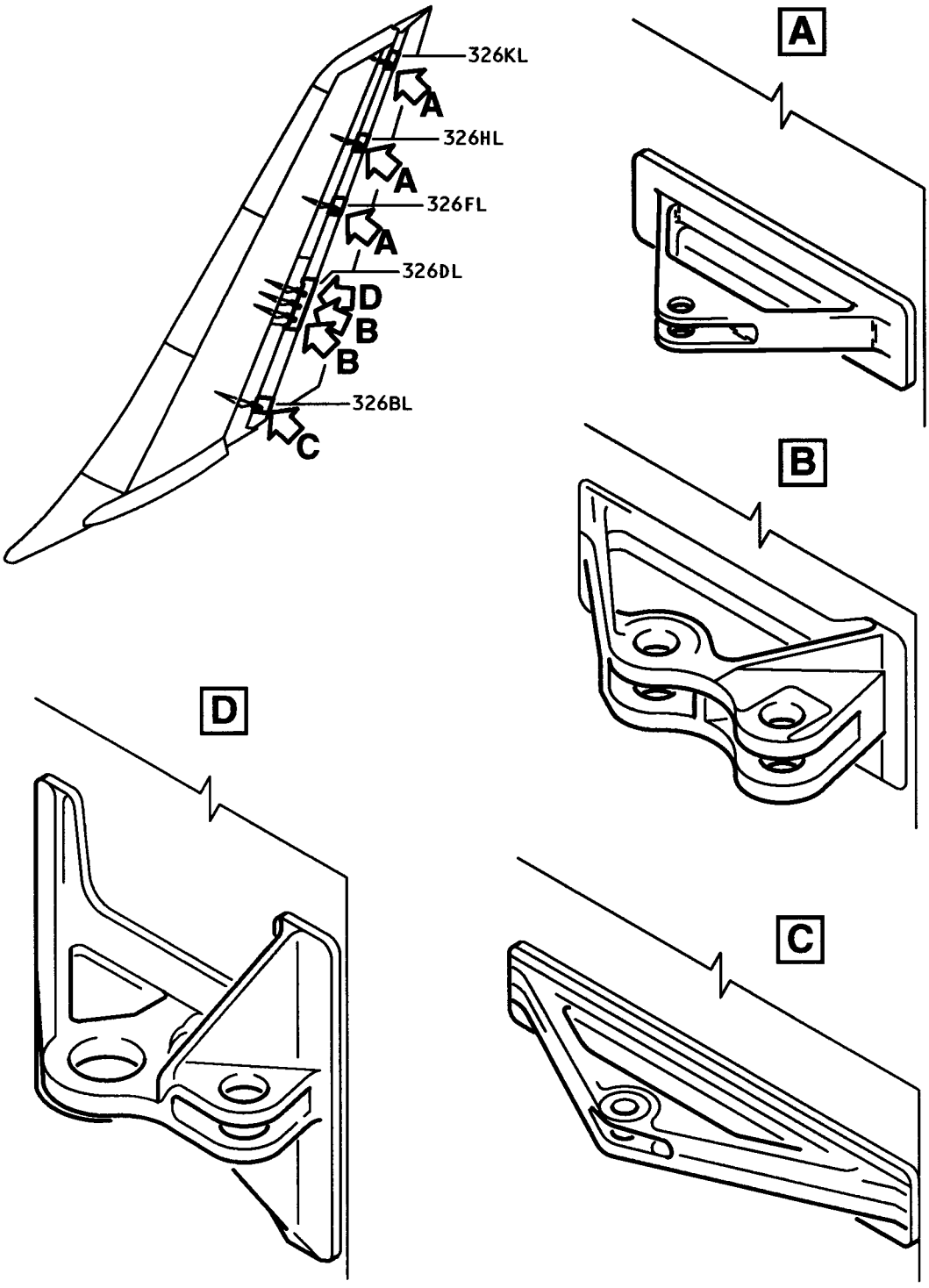
NOTE : Should defect be suspected during the following inspection/check, an approved nondestructive test must be carried out (Ref. NTM-Manual). If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

1. Attach Fittings - Visual Inspection

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platforms, 5.5 to 14.5 m (18 ft. to 48 ft.)
Referenced Procedures	
- 51-73-10, P. Block 801	Repair of Minor Damage
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels
- 55-42-13, P. Block 401	Rudder Leading Edge Access Panels
	NTM - Nondestructive Testing Manual
	SRM - Structural Repair Manual

B. Procedure
(1)Job Set-Up
(a)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(b)Position access platforms.
(c)Remove or open vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).
(d)Remove rudder leading edge access panels (Ref. 55-42-13, P. Block 401).
(2)Inspection
(a)Damage limitations
1 For the damage limits refer to the SRM 55-40-00, P. Block 101 and SRM 55-46-11, P. Block 101.
2 For removal of scratches and marks refer to 51-73-10, P. Block 801.
3 For removal of corrosion, refer to 51-74-10, P. Block 801.
4 For repair of damaged paintwork, refer to 51-75-10, P. Block 801.
(b)Inspect all attach fittings for scratches, marks, dents, corrosion, damaged paintwork and cracks (Ref. Fig. 601).
(c)Check attachment bolts for correct torque (Ref. Fig. 602).
(d)Make certain that drainage holes, where provided, are clear.
(3)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Install rudder leading edge access panels (Ref. 55-42-13, P. Block 401).
(c)Install or close vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).
(d)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(e)Remove access platforms.



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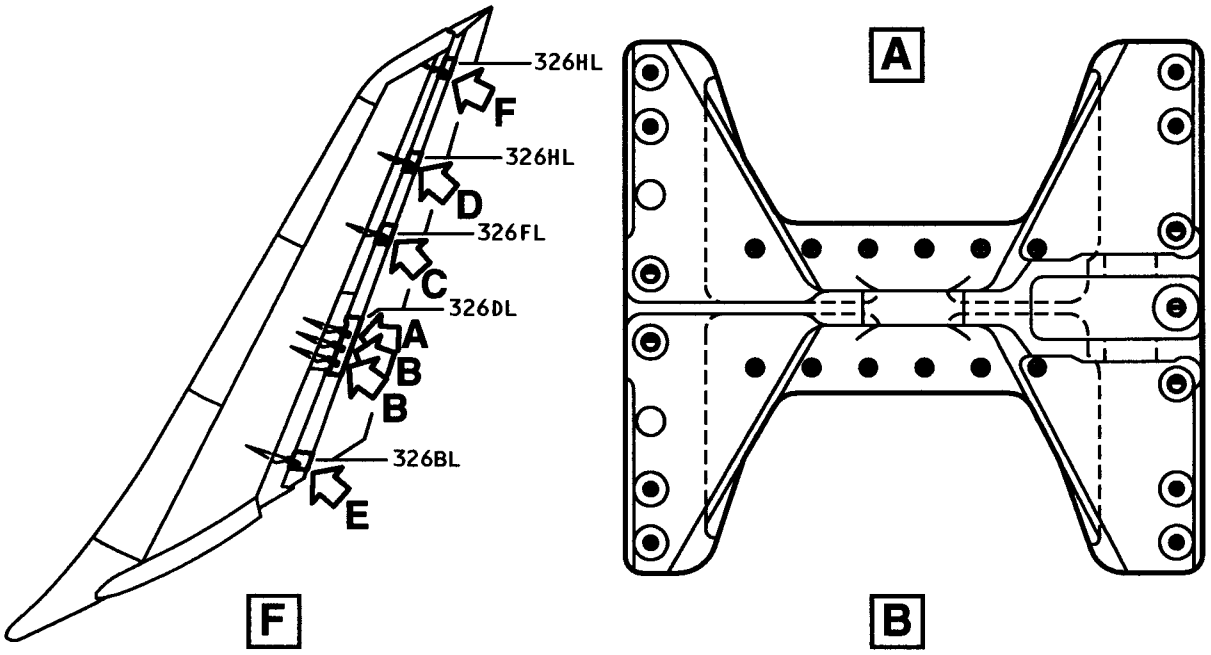
Rudder Attach Fittings
Figure 601



SYMBOL	TORQUE VALUE	
	FOR MSN A/C 162 UP TO 353,355,356,356, 359,360,362	FOR MSN A/C 354,358,361, 363 AND UP.
●	1.20 m daN (8.85 lbf. ft.)	1.20 m daN (8.85 lbf. ft.)
●	2.20 m daN (16.23 lbf. ft.)	2.20 m daN (16.23 lbf. ft.)
●	3.00 m daN (22.13 lbf. ft.)	3.00 m daN (22.13 lbf. ft.)
●	0.40-0.50 m daN (2.95-3.69 lbf. ft.)	0.25 m daN (1.84 lbf. ft.)

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Torque Values for Bolts
Figure 602

RUDDER ATTACH FITTINGS - INSPECTION/CHECK

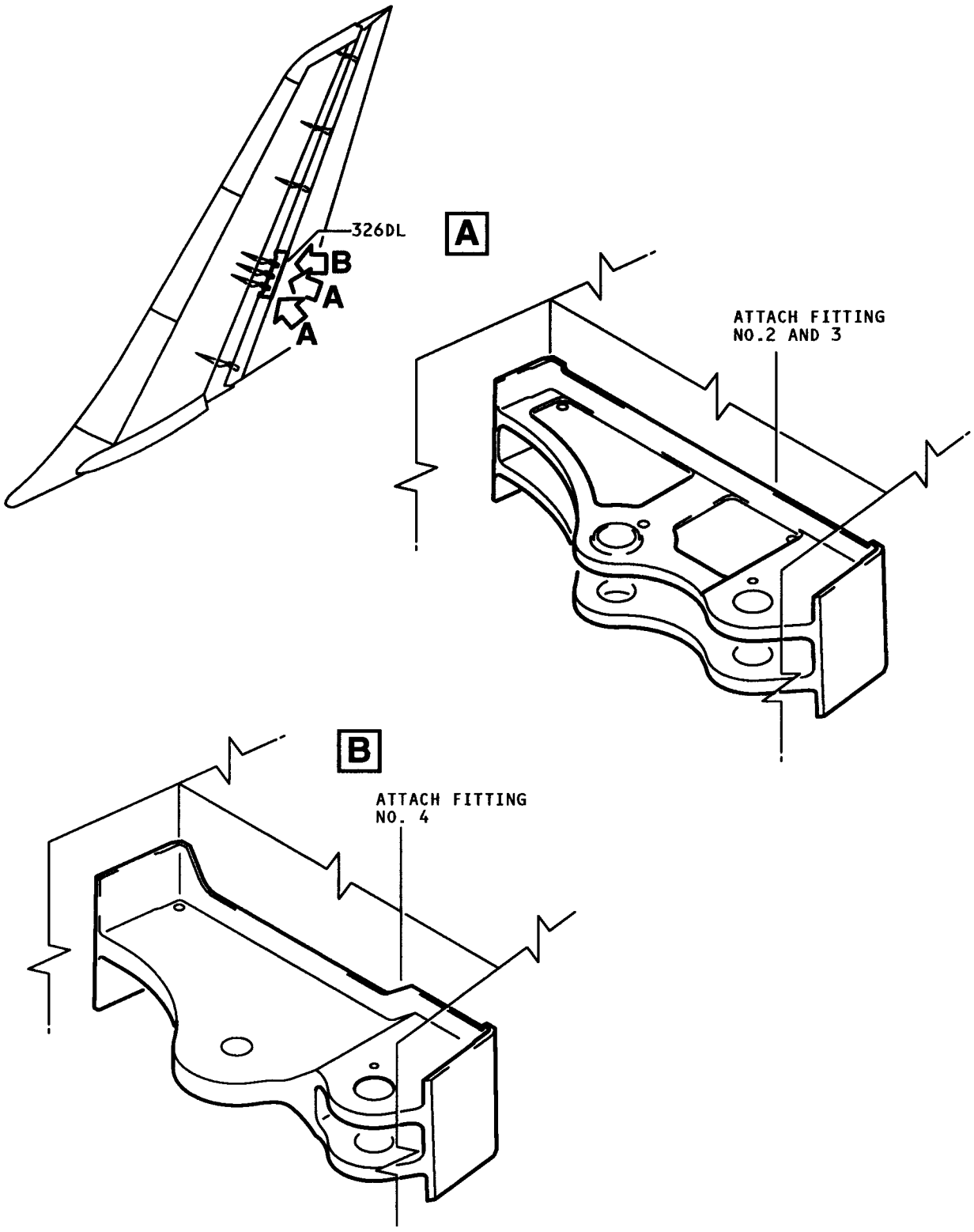
WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).
CAUTION : PERCENTAGE (%) OF ALLOWABLE DAMAGE IS ALWAYS RELATED TO THE NOMINAL MATERIAL THICKNESS AS SPECIFIED IN SRM (STRUCTURAL REPAIR MANUAL).
NOTE : Should defect be suspected during the following inspection/check, an approved nondestructive test must be carried out (Ref. NTM-Manual). If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

1. Attach Fittings - Visual Inspection

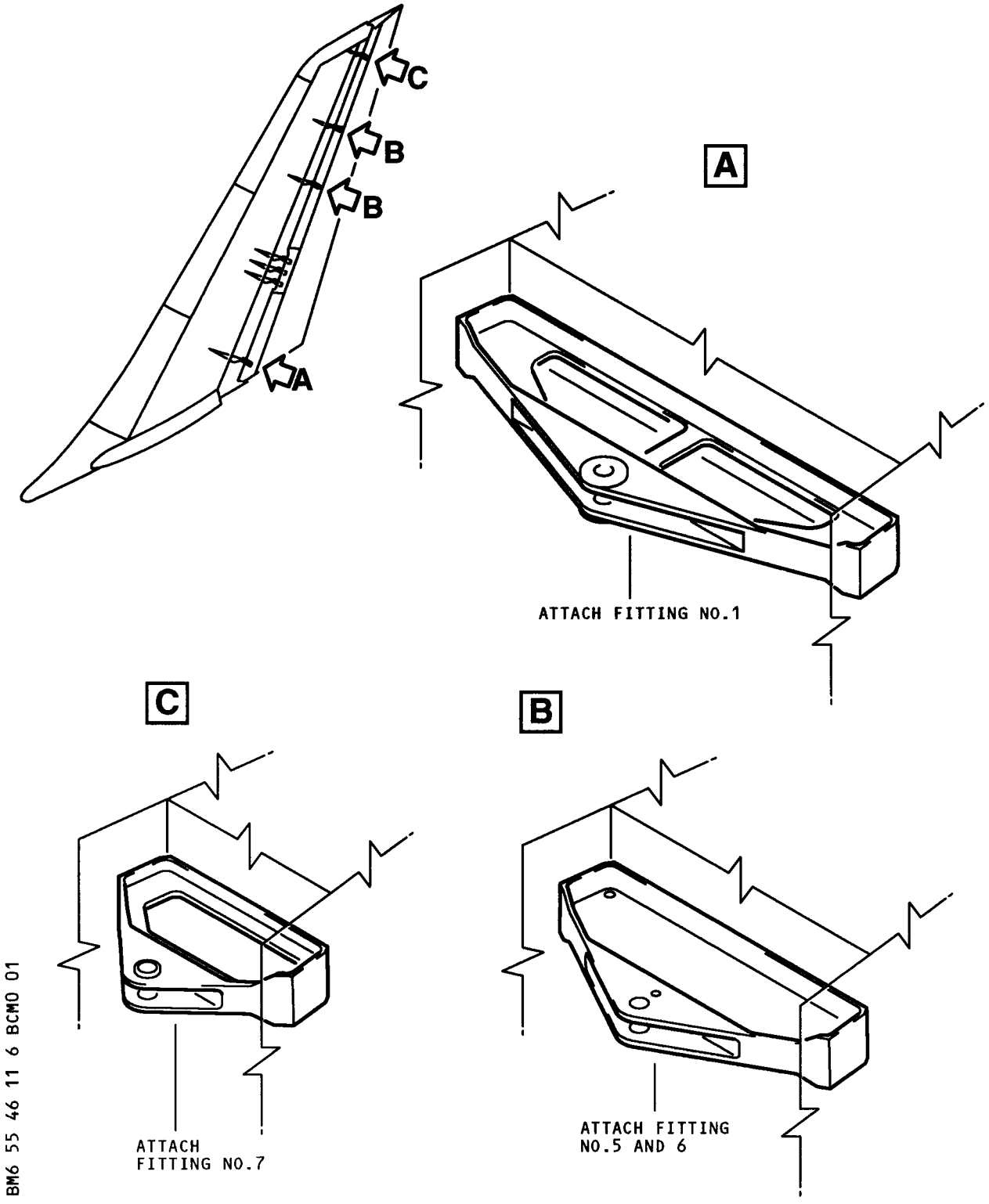
A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platforms, 5.5 to 14.5 m (18 ft. to 48 ft.)
Referenced Procedures	
- 51-73-10, P. Block 801	Repair of Minor Damage
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-33-13, P. Block 401	Trailing Edge Access Panels
	NTM - Nondestructive Testing Manual
	SRM - Structural Repair Manual

B. Procedure
(1)Job Set-Up
(a)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(b)Position access platforms.
(c)Remove or open vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).
(2)Inspection
(a)Inspect all attach fittings for scratches, marks, dents, corrosion, damaged paintwork and cracks (Ref. Fig. 601, 602).
(b)Make certain that drainage holes, where provided, are clear.
1 For the damage limits of the fittings (Ref. SRM 55-40-00, P. Block 101).
2 For removal of scratches and marks (Ref. 51-73-10, P. Block 801).
3 For removal of corrosion, (Ref. 51-74-10, P. Block 801).
4 For repair of damaged paintwork, (Ref. 51-75-10, P. Block 801).
(3)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(c)Install or close vertical stabilizer trailing edge access panels (Ref. 55-33-13, P. Block 401).
(d)Return horizontal and vertical stabilizers to operating condition



Rudder Attach Fittings - 1
Figure 601



Rudder Attach Fittings - 2
Figure 602

(Ref. 55-00-00, P. Block 301).

(e)Remove access platforms.

RUDDER HINGE BEARING NO. 4 - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

1. Equipment and Materials

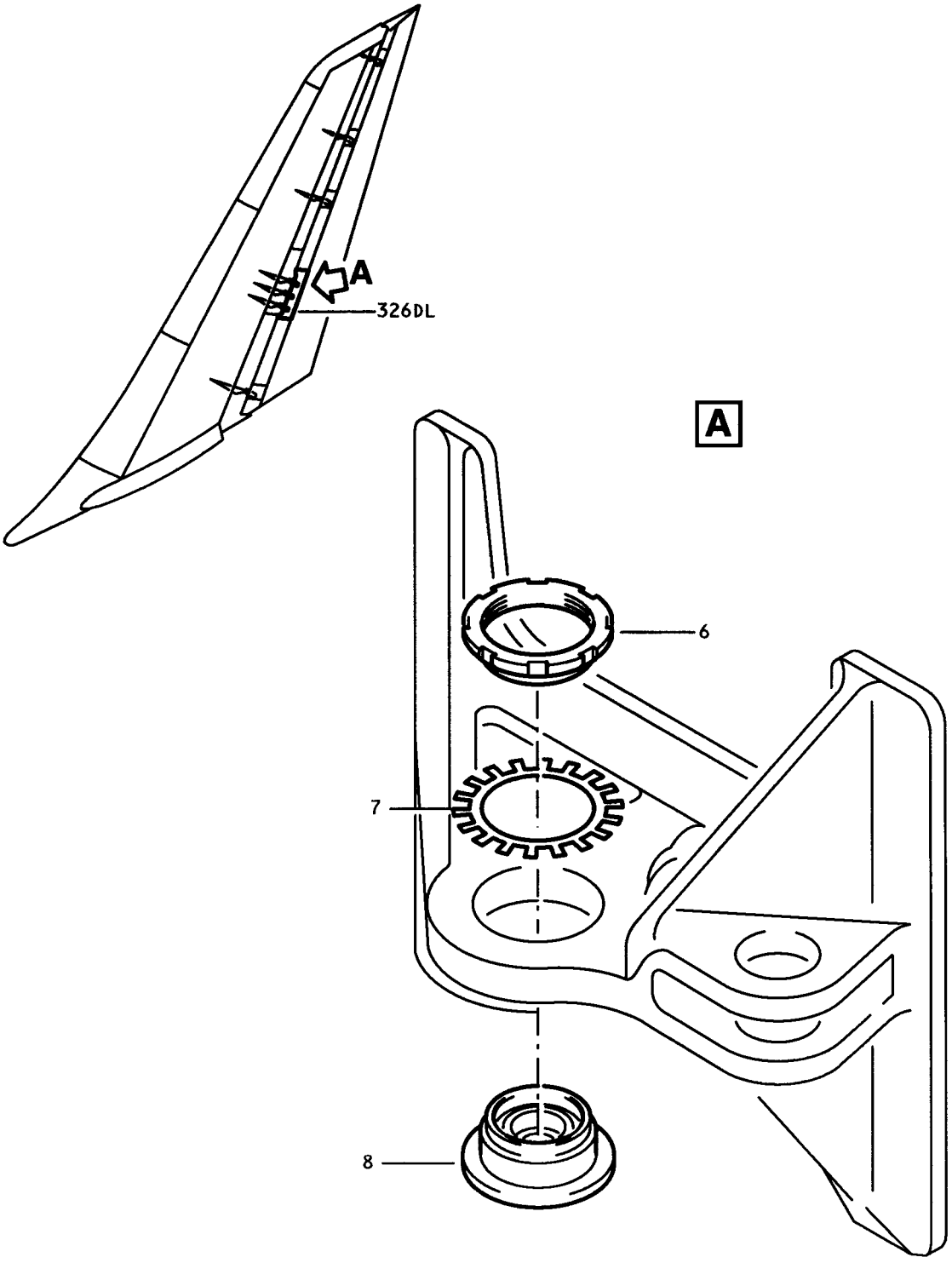
ITEM	DESIGNATION
A.	Access Platform, 10 m (32 ft.)
B. 98A27207507001	Extractor - Rudder Bearings Groove Nut Wrench (P/N 9827207507025) and Tools for Bearing 4A, Vertical Rudder (P/N 98A27207507950 and P/N 98A27207507900) used only
C.	Torque Wrench, 0.4 m.daN (35 lbf.in.)
D.	Torque Wrench, 11.0 m.daN (81 lbf.ft)
E.	Retaining Ring
F. Material No. 06-001	Lubricants (Ref. 20-31-00)
G. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 27-21-00, P. Block 501	Mechanical Control (Rudder)
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
- 55-36-45, P. Block 401	Rudder Hinge Arm No. 4

2. Procedure

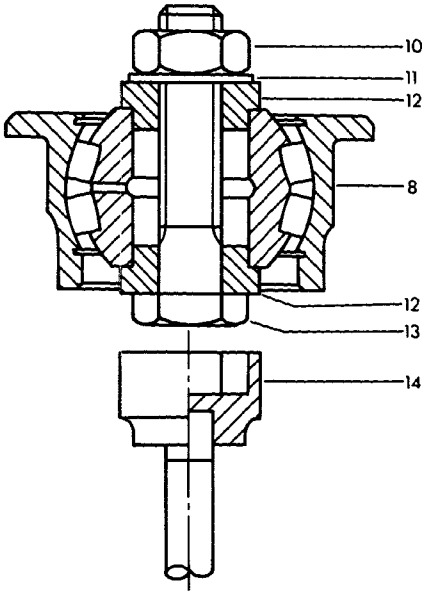
A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.
(3)Remove rudder hinge arm No. 4 (Ref. 55-36-45, P. Block 401).

B. Removal
(Ref. Fig. 401)
(1)Release tab of locking ring (7).
(2)Remove ring nut (6), using groove nut wrench P/N 98A27207507025, then locking ring (7).
(3)Remove bearing (8) from hinge fitting using rudder bearing extractor P/N 98A27207507950.

C. Preparation of Replacement Components
(Ref. Fig. 401, 402)
(1)Carry out starting torque check (Ref. Fig. 402).
(a)Insert tool (10 to 13) P/N 98A27207507900 in bearing (8) and TORQUE to 0.35 m.daN (31.0 lbf.in.).
(b)Position torque wrench (14) on bolt (13) and check that starting torque is max. 0.025 m.daN (2.21 lbf.in.).
NOTE : The bearing must be replaced if starting torque exceeds limits.
(c)Remove tool (10 to 13) from bearing (8).



Spherical Roller Bearing No. 4
Figure 401



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Starting Torque Check on Roller Bearing
Figure 402

CAUTION : DO NOT ALLOW CLEANING AGENT (MAT. No. 11-004) TO ENTER BEARING.

(2)Degrease external surface of outer ring of bearing (8), threads of ring nut (6) and internal surface of bush in attach fitting, with cleaning agent (Mat. No. 11-004).

(3)Apply lubricant (Mat. No. 06-001) to threads of bearing (8) and threads of ring nut (6).

D. Installation

(Ref. Fig. 401)

(1)Press bearing (8) into hinge fitting using rudder bearing extractor P/N 98A27207507950.

(2)Install locking ring (7) and ring nut (6) using groove nut wrench P/N 98A27207507025.

(3)TORQUE ring nut (6) to between 8.0 and 8.8 m.daN (59.01 and 64.91 lbf.ft.).

(4)Lock ring nut (6) with locking ring (7).

(5)Install rudder hinge arm no. 4 (Ref. 55-36-45, P. Block 401).

(6)Make certain that travel ranges of rudder and actuators are clear.

E. Test

(1)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).

(2)Carry out functional test of rudder mechanical controls (Ref. 27-21-00, P. Block 501).

(3)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

F. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(2)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).

(3)Remove access platform.

RUDDER HINGE BEARING NO. 4 - REMOVAL/INSTALLATION

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).

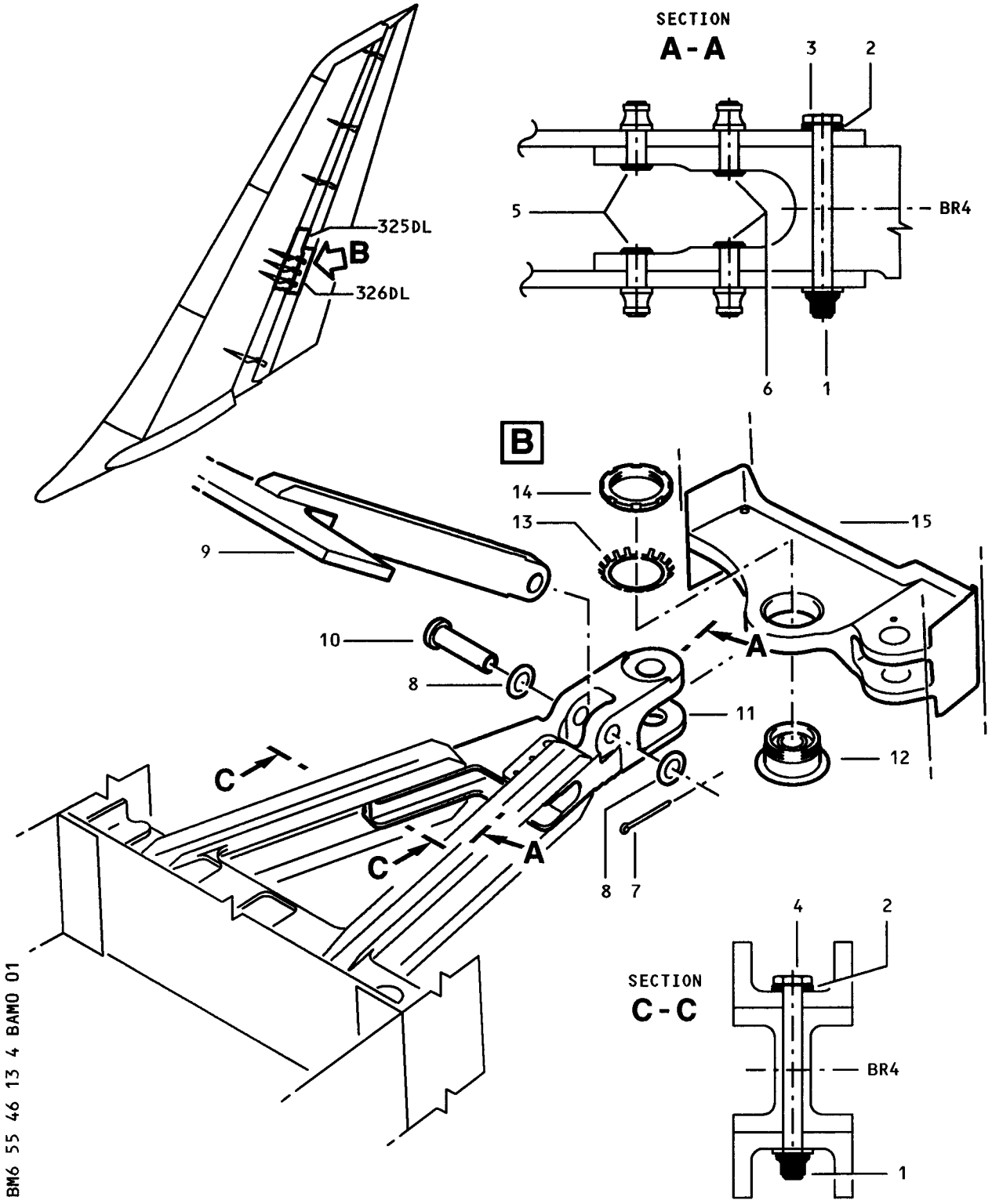
1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 14,5 m (48 ft.)
B. 98A27207507001	Extractor - Rudder Bearings Groove Nut Wrench (P/N 9827207507025) and Tools for Bearing 4A, Vertical Rudder (P/N 98A27207507950 and P/N 98A27207507900) used only
C.	Torque Wrench, up to 0.04 m.daN (3.5 lbf.in.)
D.	Torque Wrench, up to 11.0 m.daN (81 lbf.ft)
E.	Retaining Ring
F. Material No. 06-001	Lubricants (Ref. 20-31-00)
G. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 27-21-00, P. Block 501	Mechanical Control (Rudder)
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures
	SRM - Structural Repair Manual

2. Procedure

A. Job Set-Up
(1)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(2)Position access platform.

B. Removal
(Ref. Fig. 401)
(1)Disconnect support strut (9) from hinge arm.
(2)Remove cotter pin (7), washers (8) and bolt (10) from support strut (9) and hinge arm lug (11).
(3)Remove nuts (1), bolts (3 and 4) and washers (2), for removal of fasteners (5 and 6) refer to SRM (Structural Repair Manual).
(4)Remove lug (11) from hinge arm.
(5)Release tab of locking ring (13).
(6)Remove ring nut (14), using groove nut wrench P/N 98A27207507025.
(7)Remove locking ring (13).
(8)Remove bearing (12) from hinge fitting using rudder bearing extractor P/N 98A27207507950.



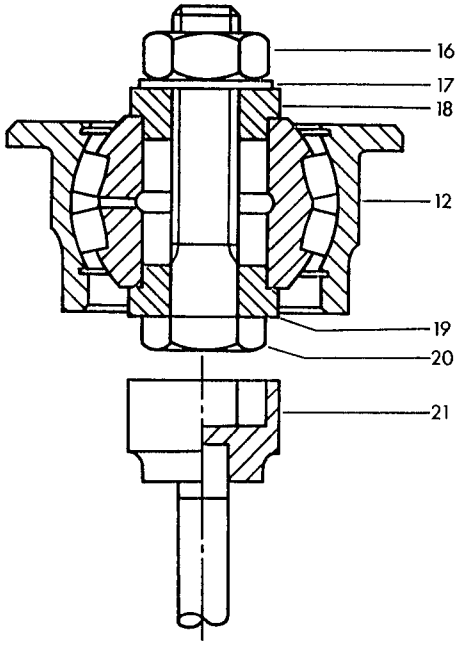
Spherical Roller Bearing No. 4
Figure 401

C. Preparation of Replacement Components
(Ref. Fig. 401, 402)
(1)Carry out friction torque check (Ref. Fig. 402).
(a)Insert tool (16 to 20) P/N 98A27207507900 in bearing (12) and TORQUE to 0.35 m.daN (31.0 lbf.in.).
(b)Position torque wrench (21) on bolt (20) and check that friction torque is between 0.004 and 0.012 m.daN (0.354 and 1.062 lbf.in.).
NOTE : The bearing must be replaced if friction torque exceeds limits.
(c)Remove tool (16 to 20) from bearing (12).
CAUTION : DO NOT ALLOW CLEANING AGENT (MAT. No. 11-004) TO ENTER BEARING.
(2)Degrease external surface of outer ring of bearing (12), threads of ring nut (14) and internal surface of bush in attach fitting, with cleaning agent (Mat. No. 11-004).
(3)Apply lubricant (Mat. No. 06-001) to threads of bearing (12) and threads of ring nut (14).

D. Installation
(Ref. Fig. 401)
(1)Install bearing (12) into hinge fitting (15) using rudder bearing extractor P/N 98A27207507950.
(2)Install locking ring (13) and ring nut (14) using groove nut wrench P/N 98A27207507025.
(3)TORQUE ring nut (14) to between 8.0 and 8.8 m.daN (59.01 and 64.91 lbf.ft.).
(4)Lock ring nut (14) with locking ring (13).
(5)Install lug (11) to hinge arm.
(6)Install washers (2), bolts (3, 4) and nuts (1) to connect lug (11) to hinge arm.
(7)For installation of fasteners (5, 6) refer to SRM (Structural Repair Manual).
(8)Make certain that travel ranges of rudder and actuators are clear.

E. Test
(1)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(2)Carry out functional test of rudder mechanical controls (Ref. 27-21-00, P. Block 501).
(3)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Return horizontal and vertical stabilizers to operating condition (Ref. 55-00-00, P. Block 301).
(3)Remove access platform.



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Friction Torque Check on Roller Bearing
Figure 402